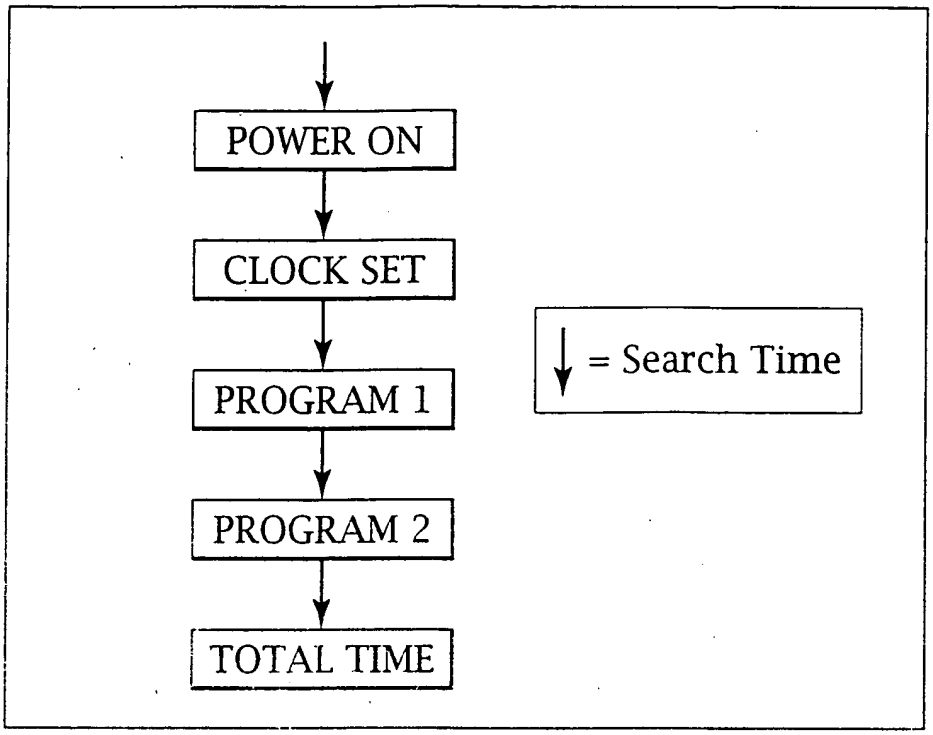

POWER ON
CLOCK SET
PROGRAM 1
PROGRAM 2
TOTAL TIME
= Search Time

Fig. 1

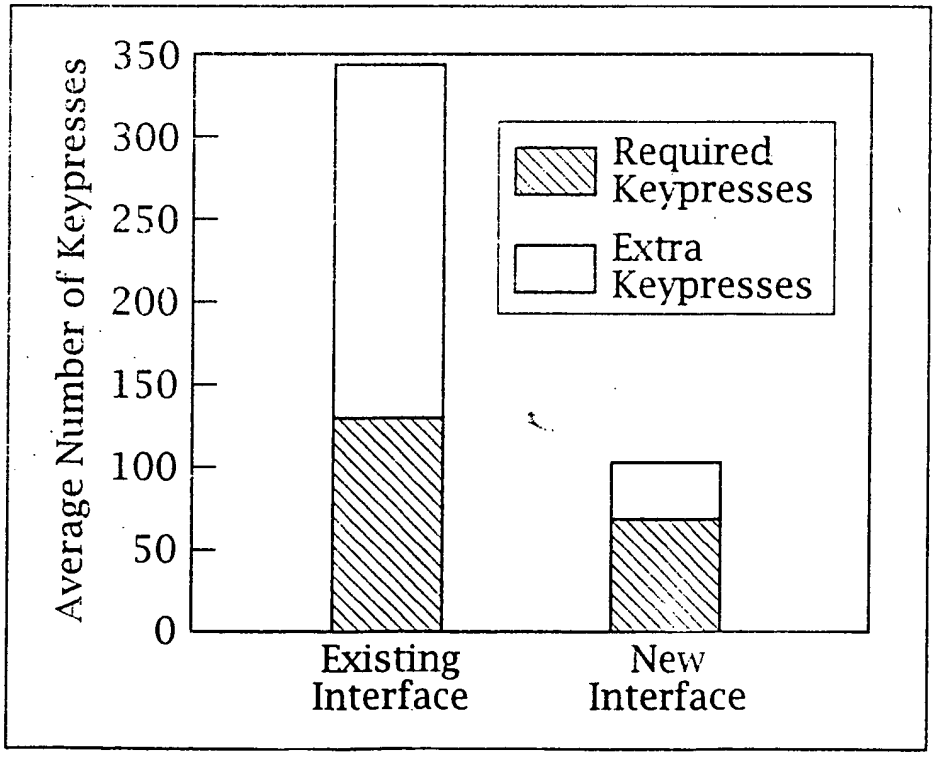

Average Number of Keypresses
350
300
250
200
150
100
50
0
Required Keypresses
Extra Keypresses
Existing Interface
New Interface

Fig. 2

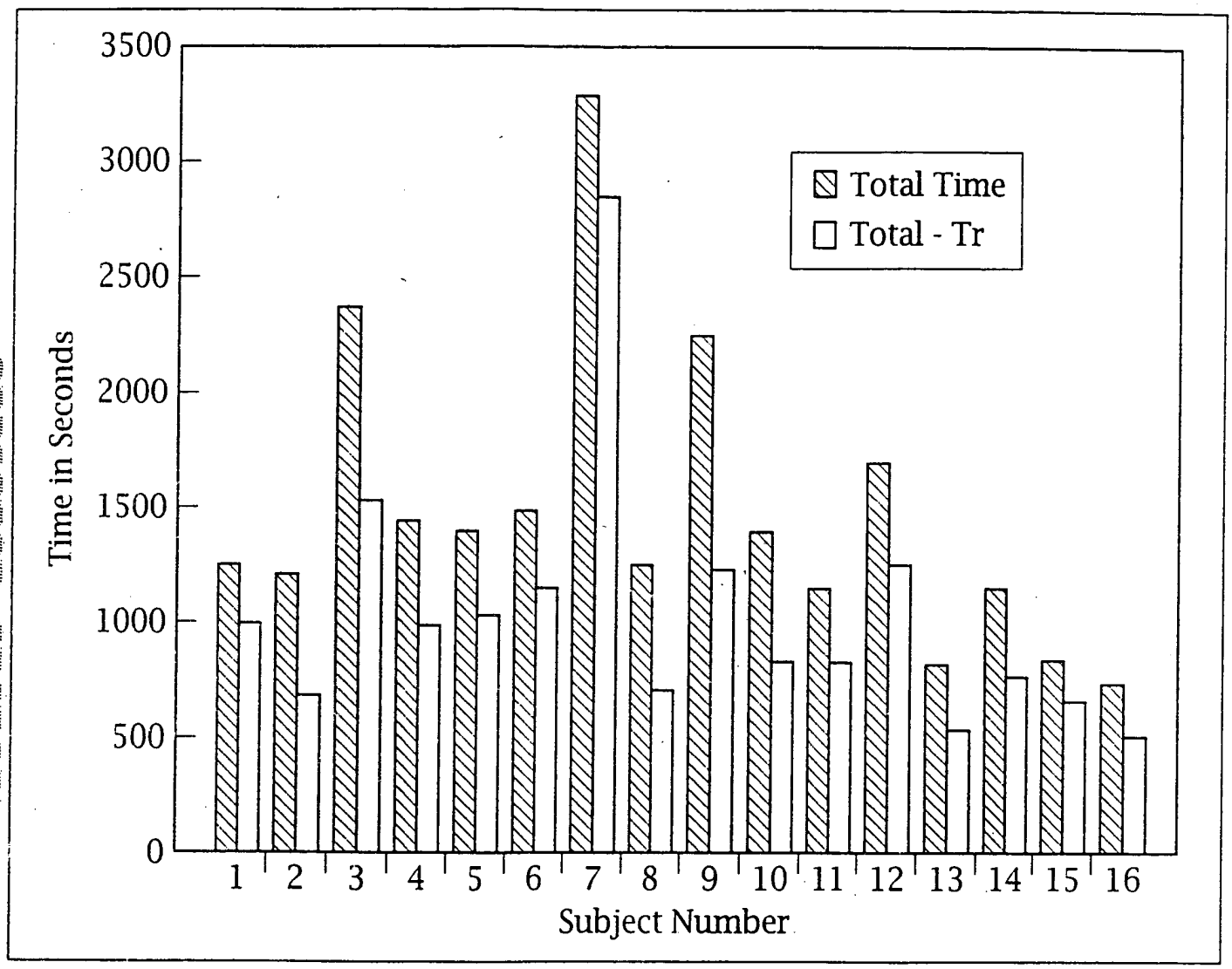

3500
3000
2500
2000
1500
1000
500
0
Time in Seconds
Total Time
Total - Tr
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Subject Number

Fig. 3

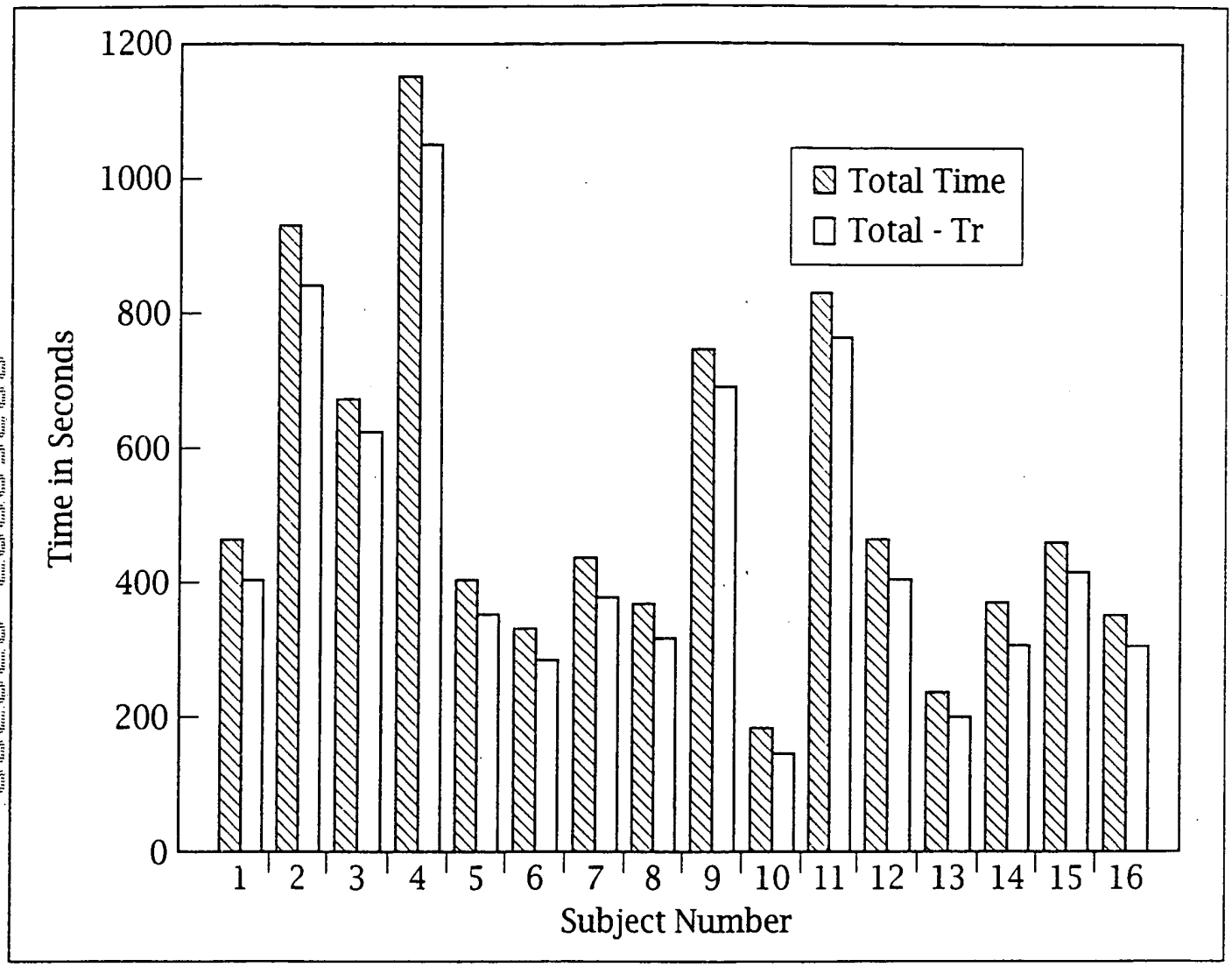

1200
1000
800
600
400
200
0
Time in Seconds
Total Time
Total - Tr
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Subject Number

Fig. 4

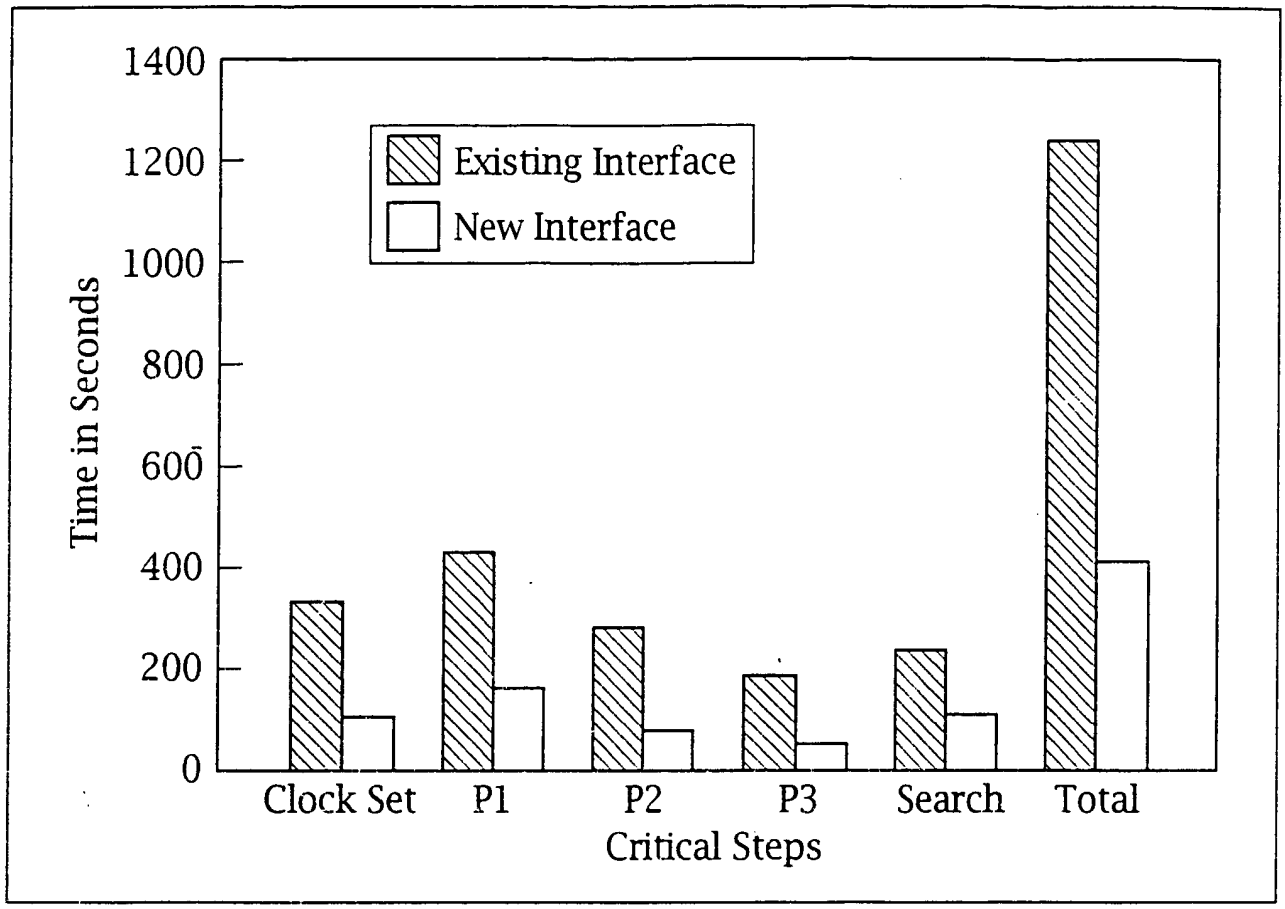

1400
1200
1000
800
600
400
200
0
Time in Seconds
Existing Interface
New Interface
Clock Set
P1
P2
P3
Search
Total
Critical Steps

Fig. 5

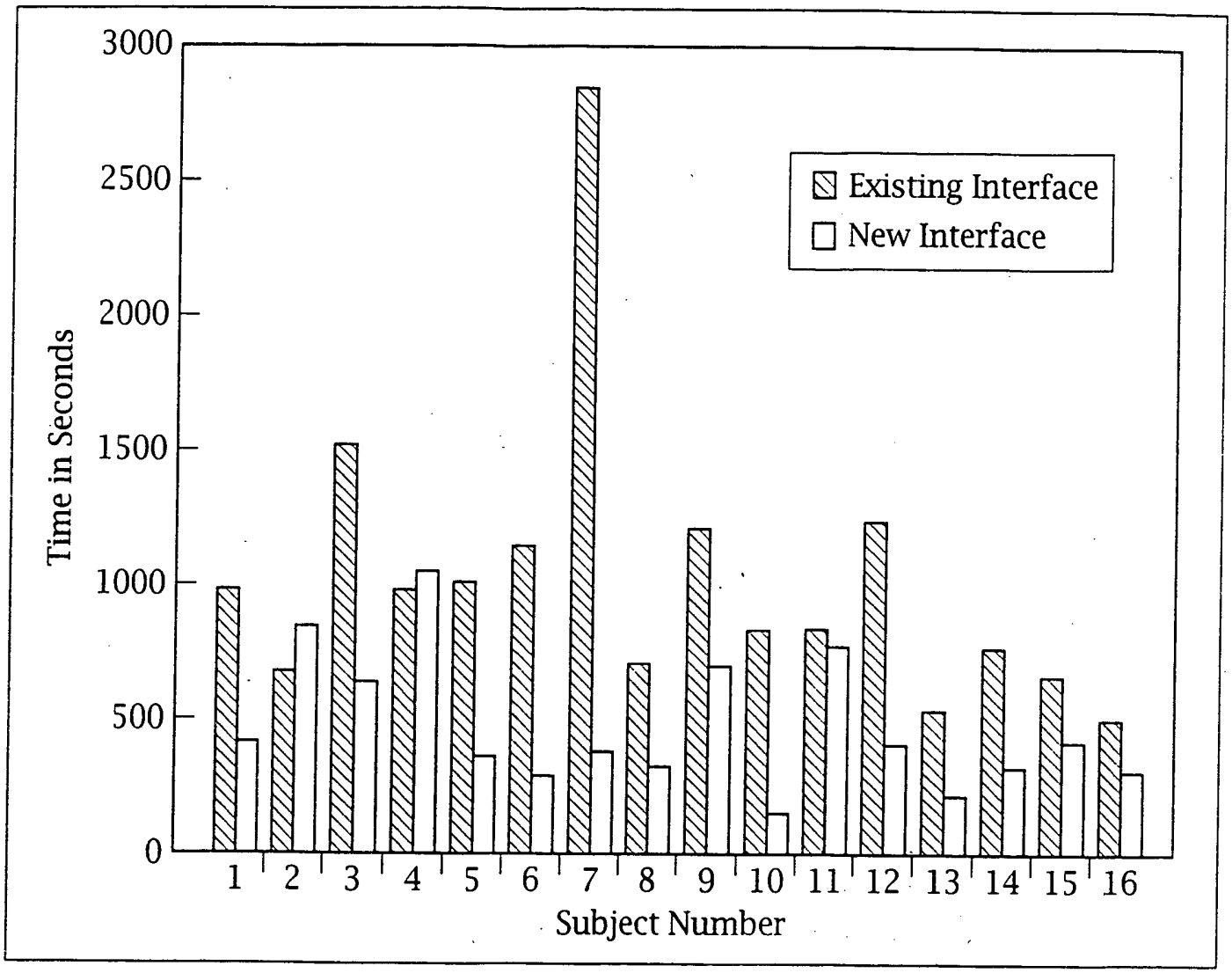

3000
2500
2000
1500
1000
500
0
Time in Seconds
Existing Interface
New Interface
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Subject Number

Fig. 6

Sandia 2005-8258P

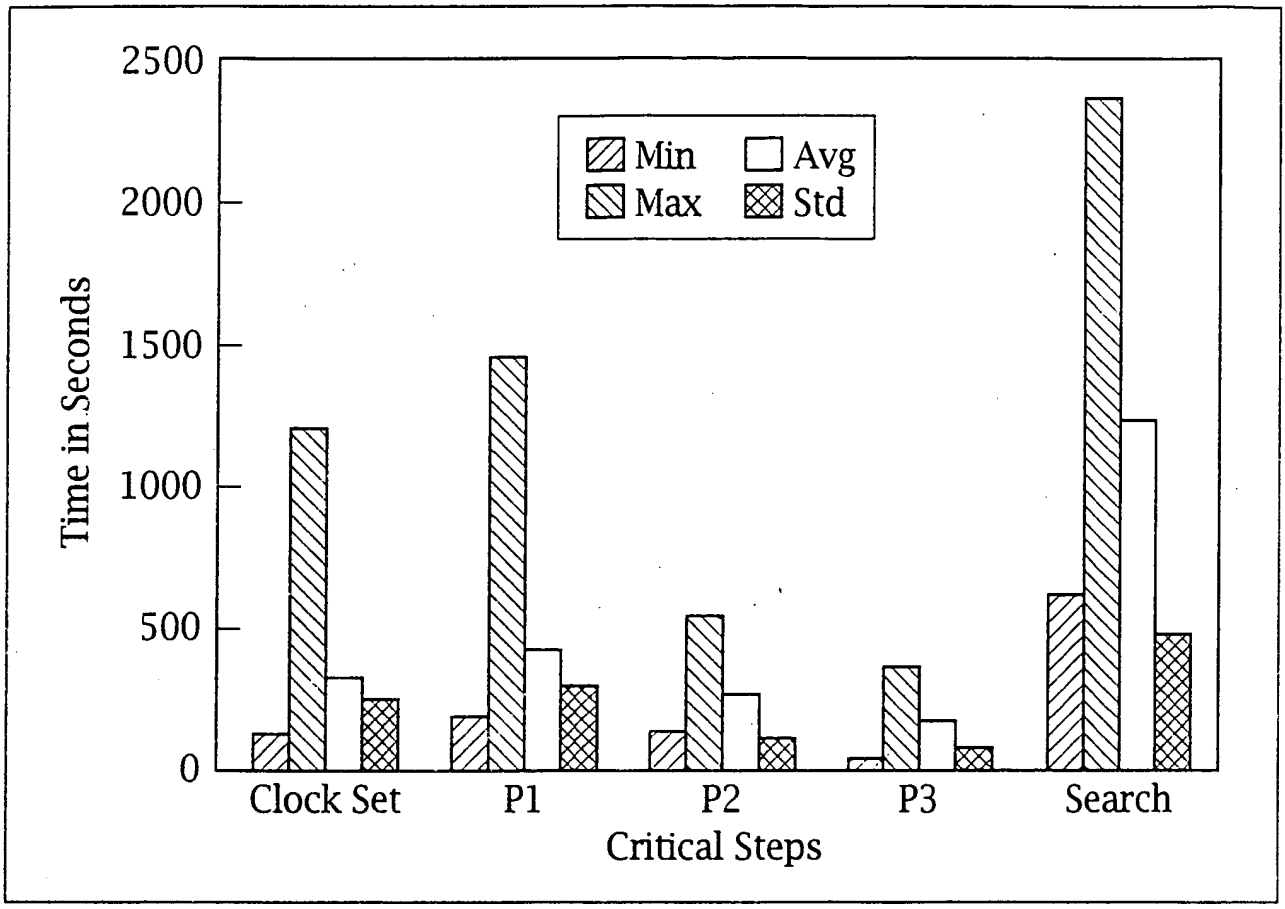


Fig. 7

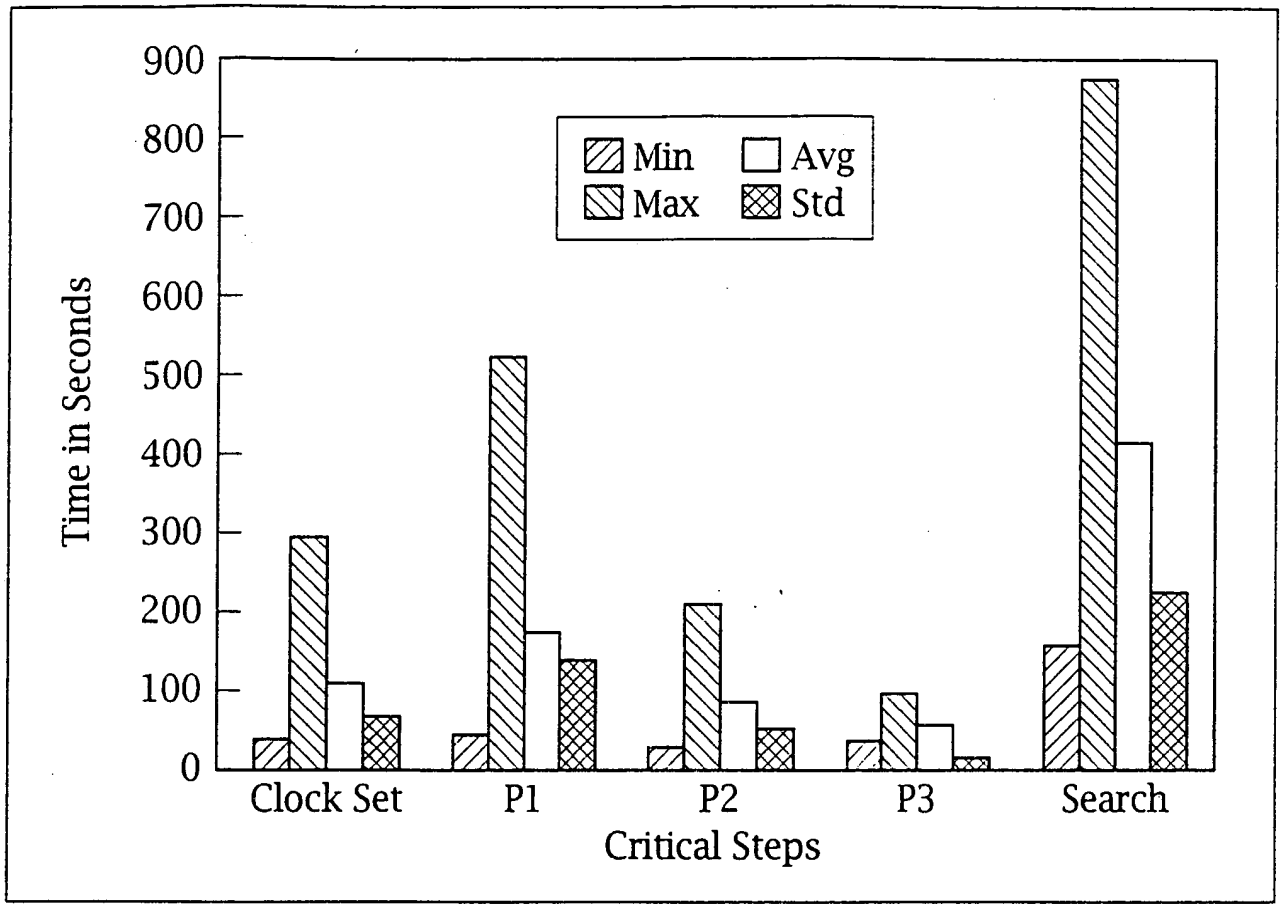

900
800
700
600
500
400
300
200
100
0
Time in Seconds
Min
Avg
Max
Std
Clock Set
P1
P2
P3
Search
Critical Steps

Fig. 8

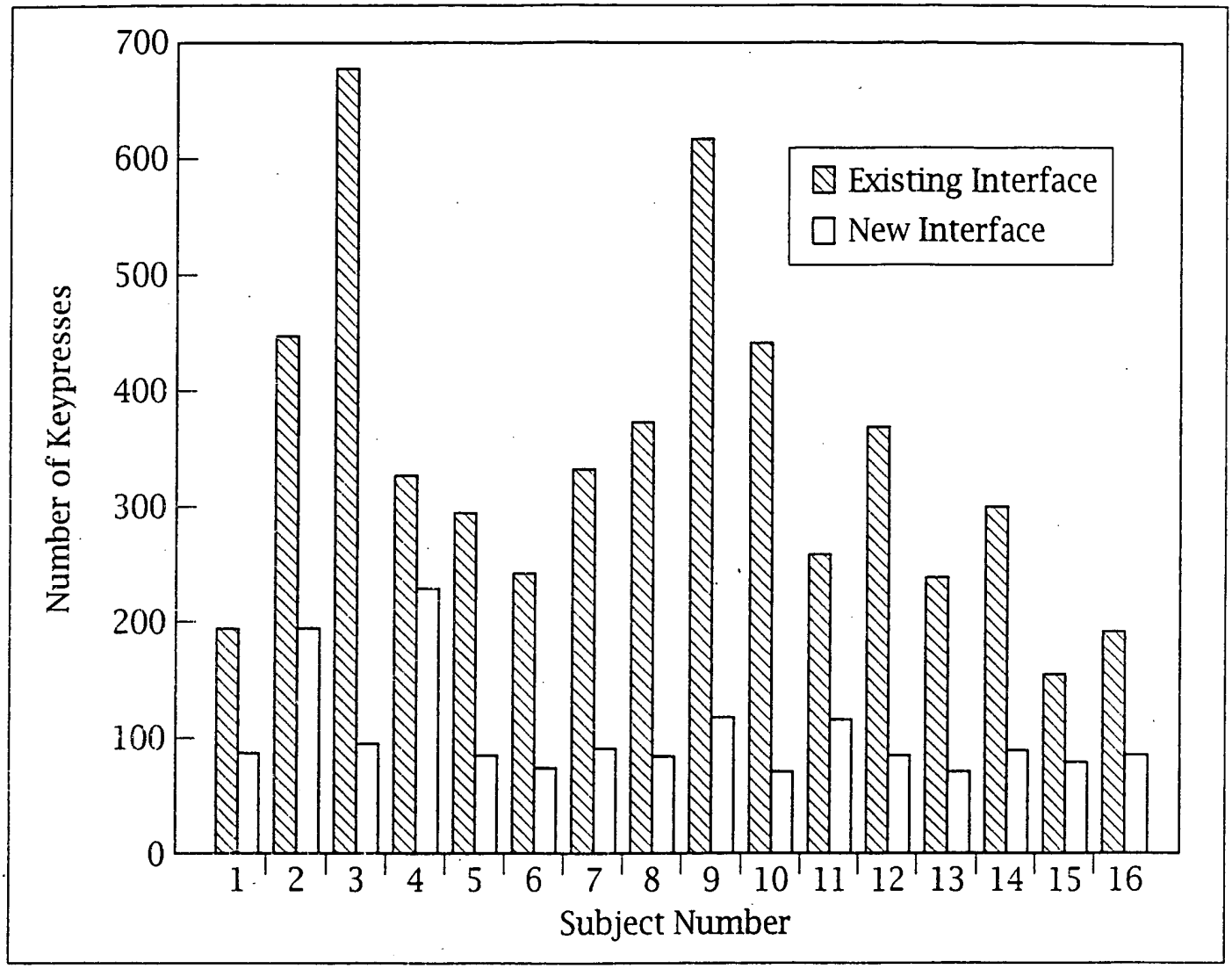

700
600
500
400
300
200
100
0
Number of Keypresses
Existing Interface
New Interface
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Subject Number

Fig. 9

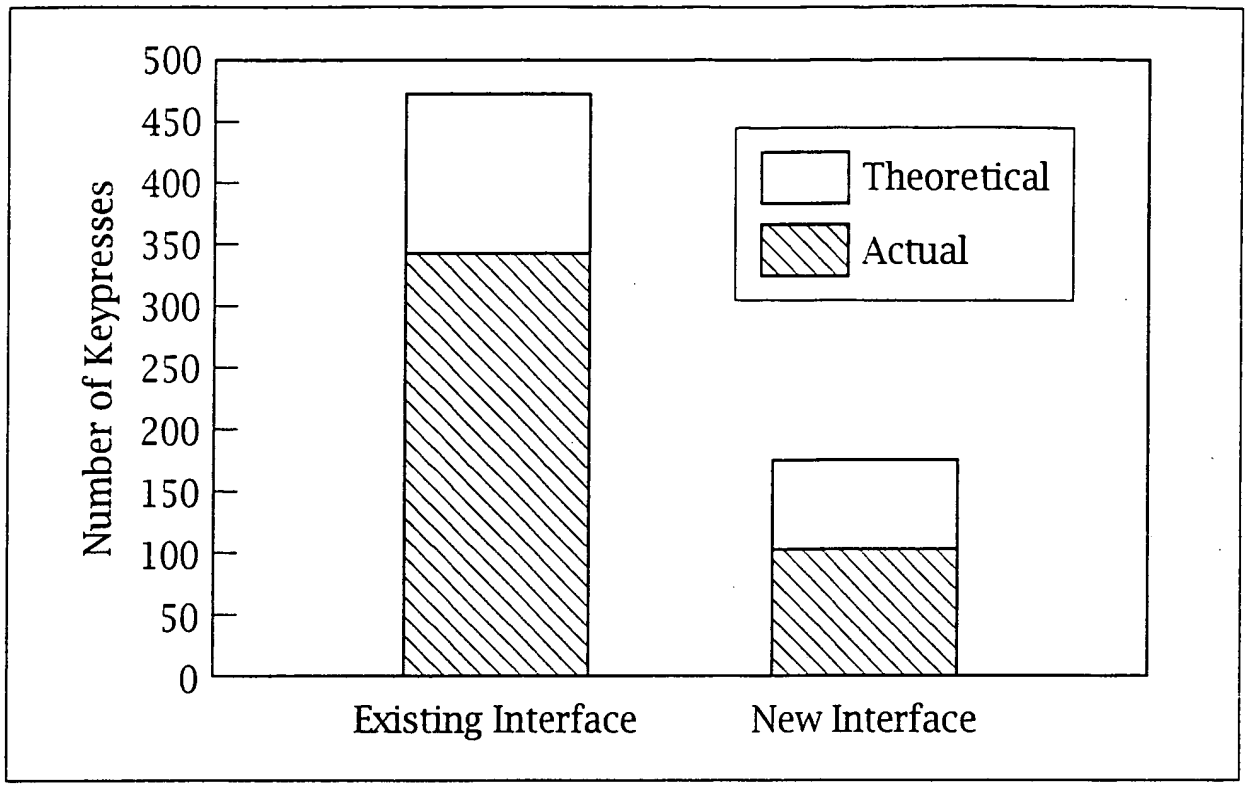

500
450
400
350
300
250
200
150
100
50
0
Number of Keypresses
Theoretical
Actual
Existing Interface
New Interface

Fig. 10

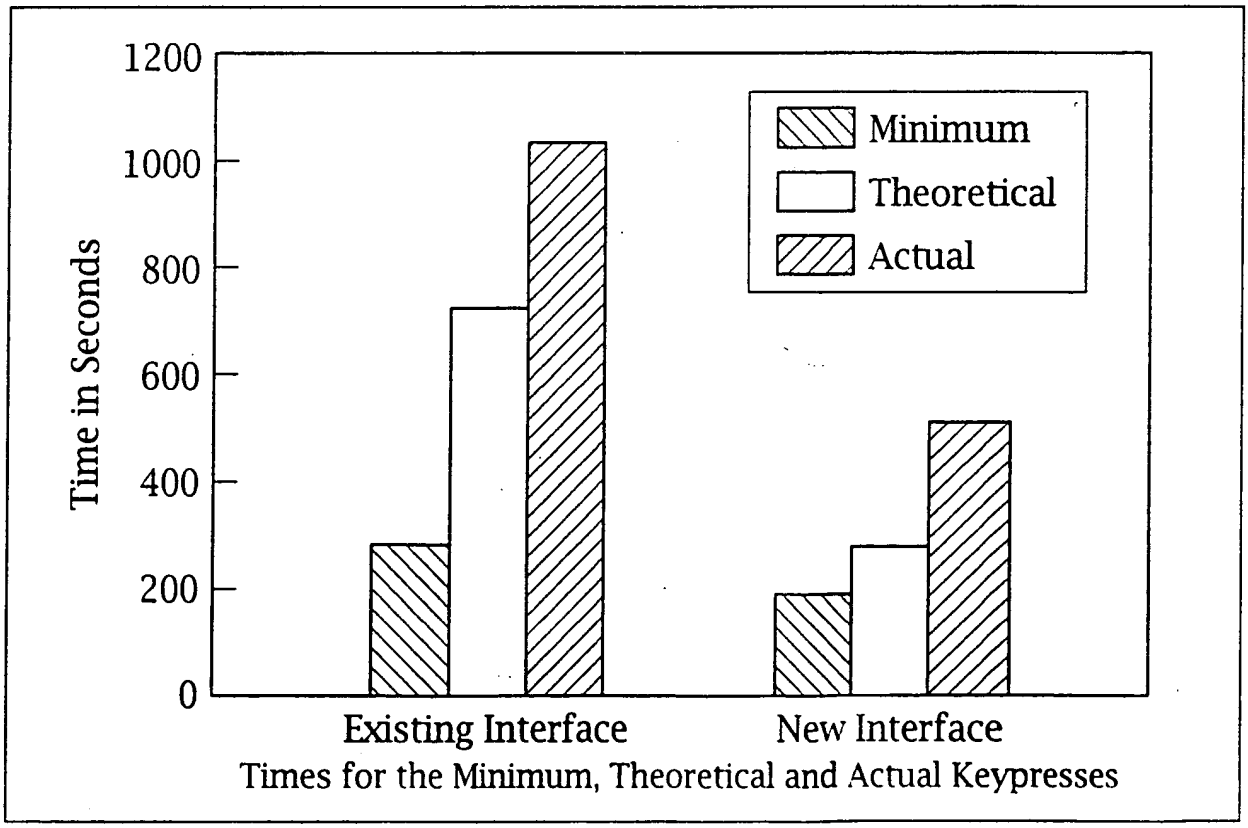
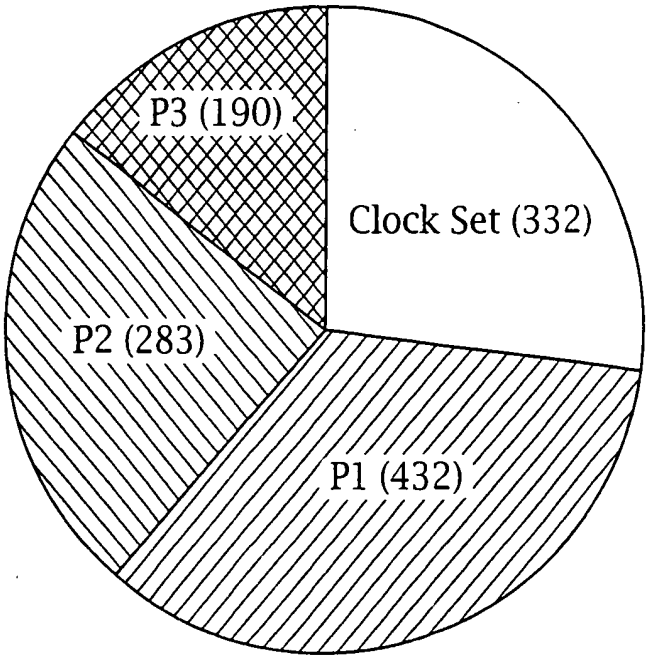
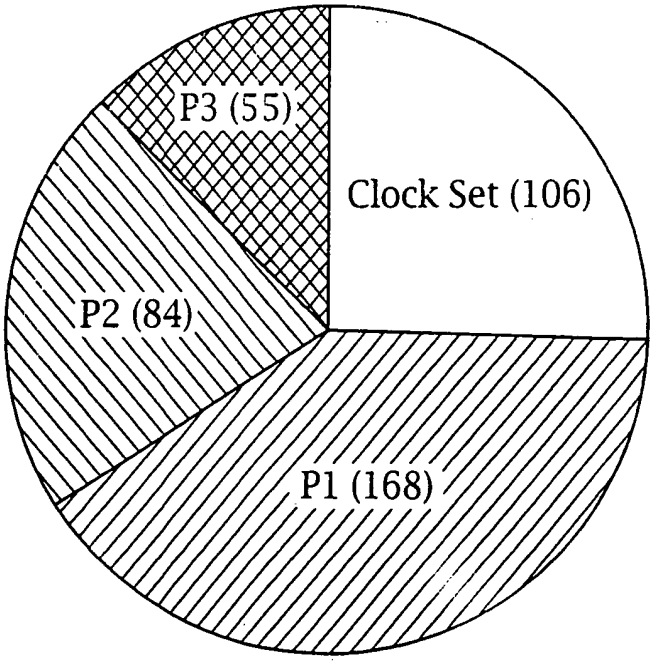

1200
1000
800
600
400
200
0
Time in Seconds
Minimum
Theoretical
Actual
Existing Interface
New Interface
Times for the Minimum, Theoretical and Actual Keypresses

Fig. 11



Existing Interface

Fig. 12a



New Interface

Fig. 12b

0502002-030969

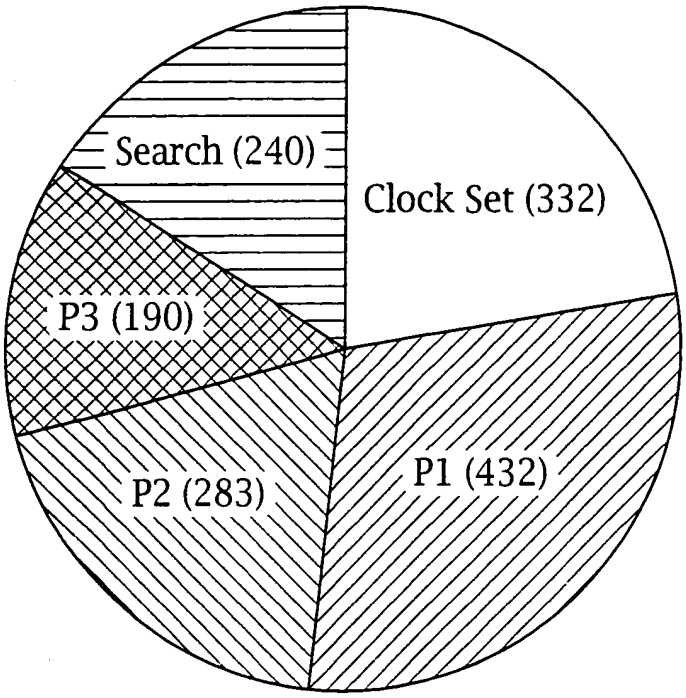


Fig. 13

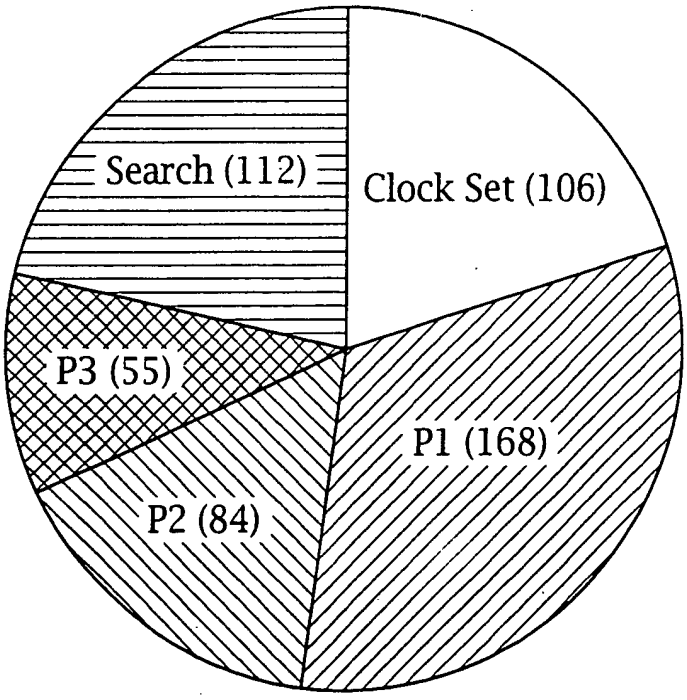


Fig. 14

5,628,028 - 06/02/95

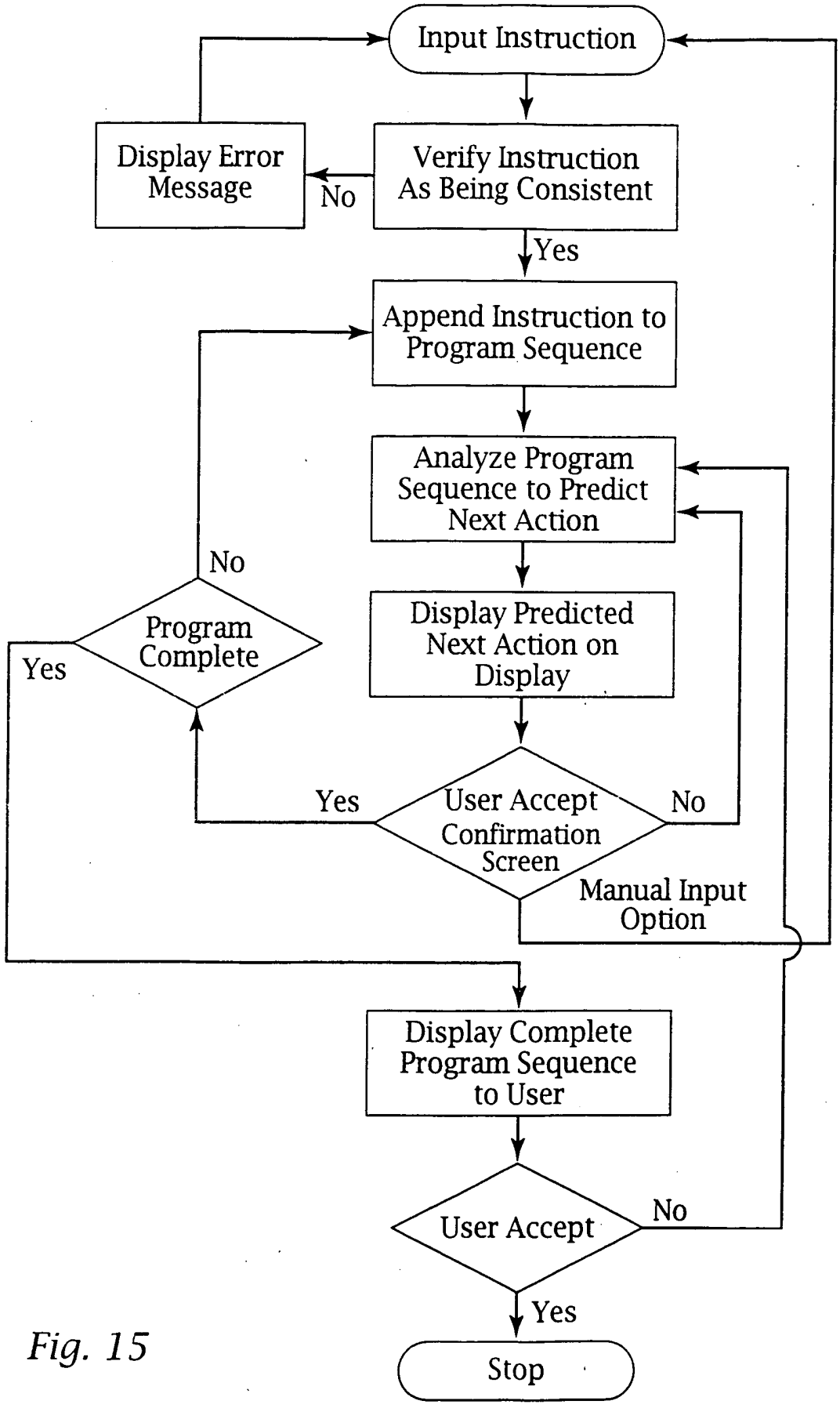

Input Instruction
Verify Instruction As Being Consistent
No
Display Error Message
Yes
Append Instruction to Program Sequence
Analyze Program Sequence to Predict Next Action
Display Predicted Next Action on Display
User Accept Confirmation Screen
Yes
No
Manual Input Option
Program Complete
No
Yes
Display Complete Program Sequence to User
User Accept
No
Yes
Stop

Fig. 15

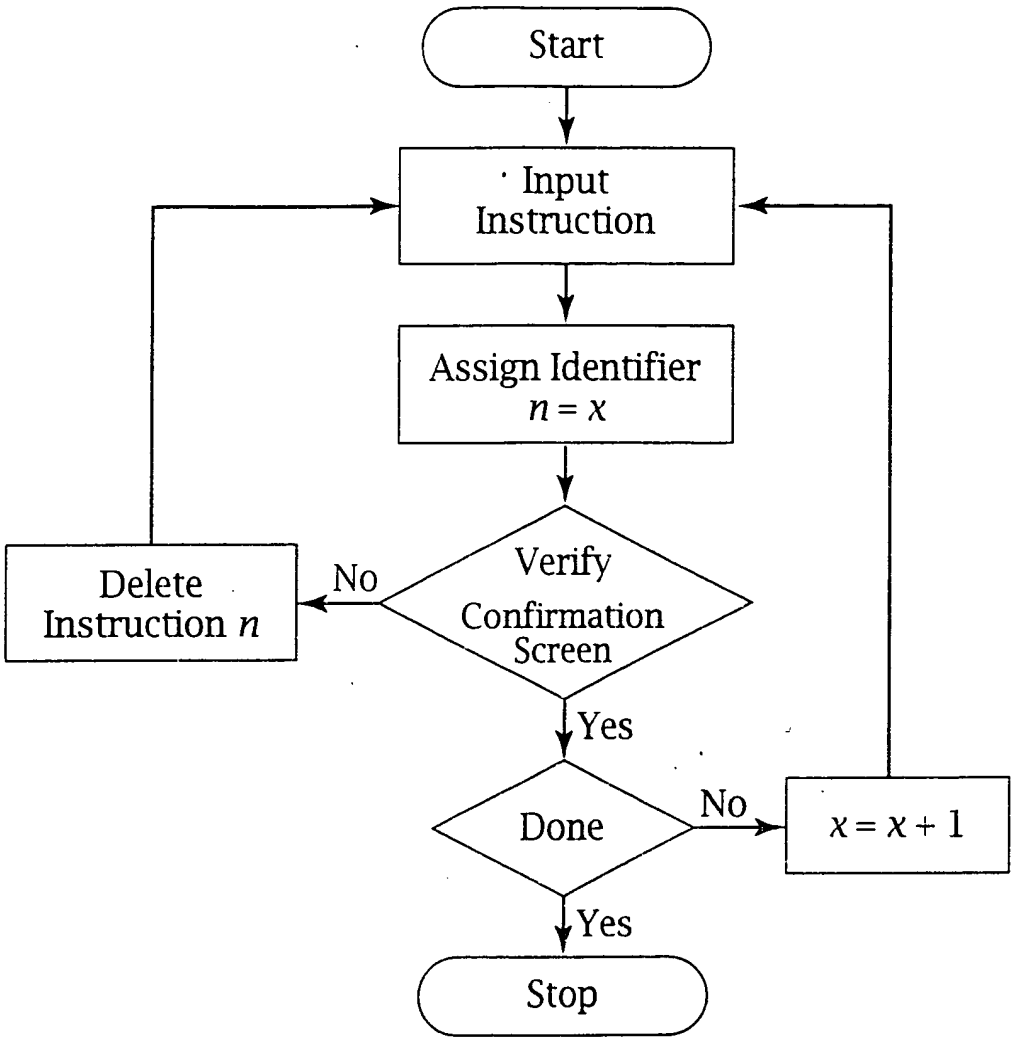

Start
Input Instruction
Assign Identifier n = x
Verify Confirmation Screen
No
Delete Instruction n
Yes
Done
No
x = x + 1
Yes
Stop

Fig. 16

5,950,200

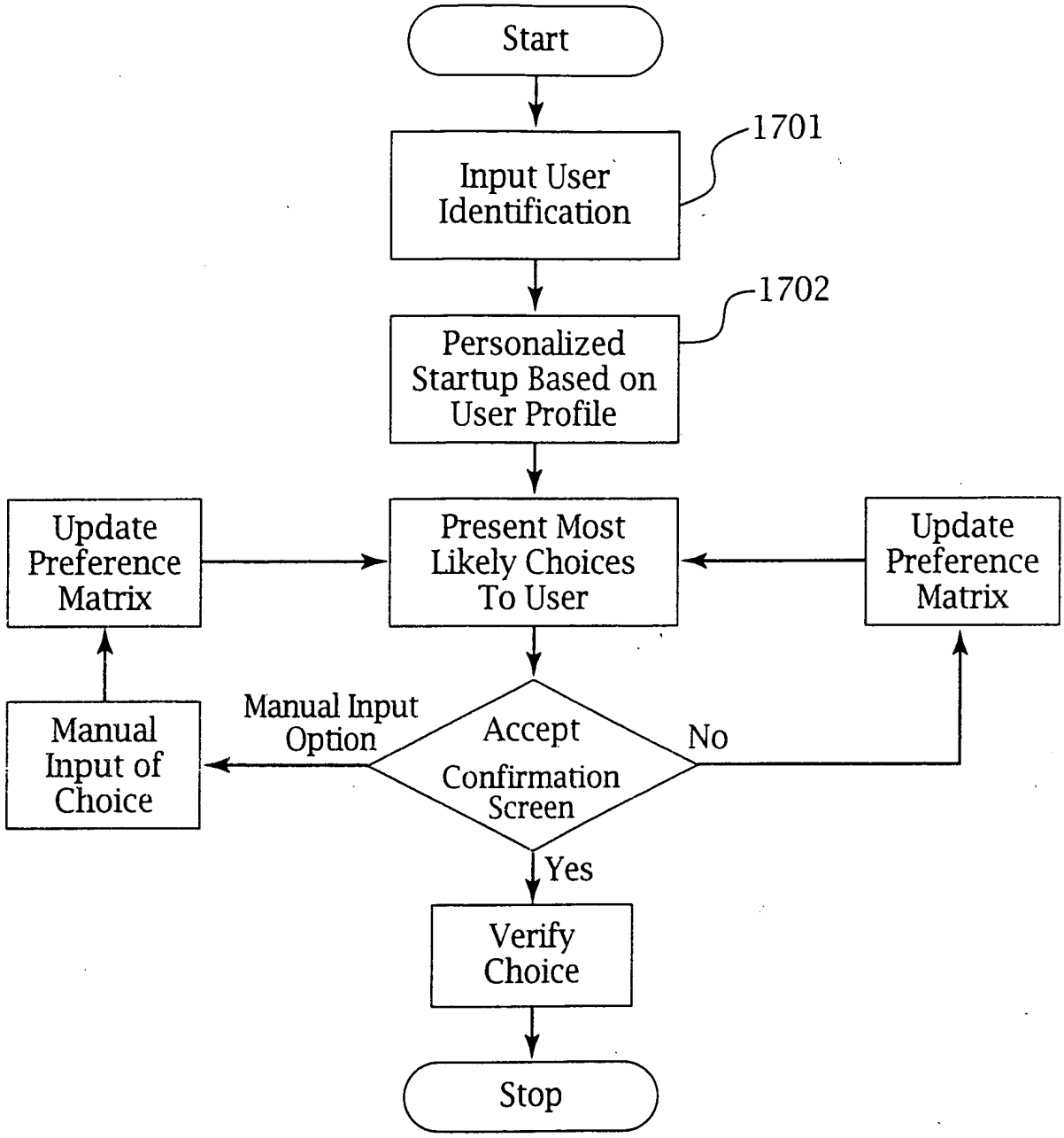


Fig. 17

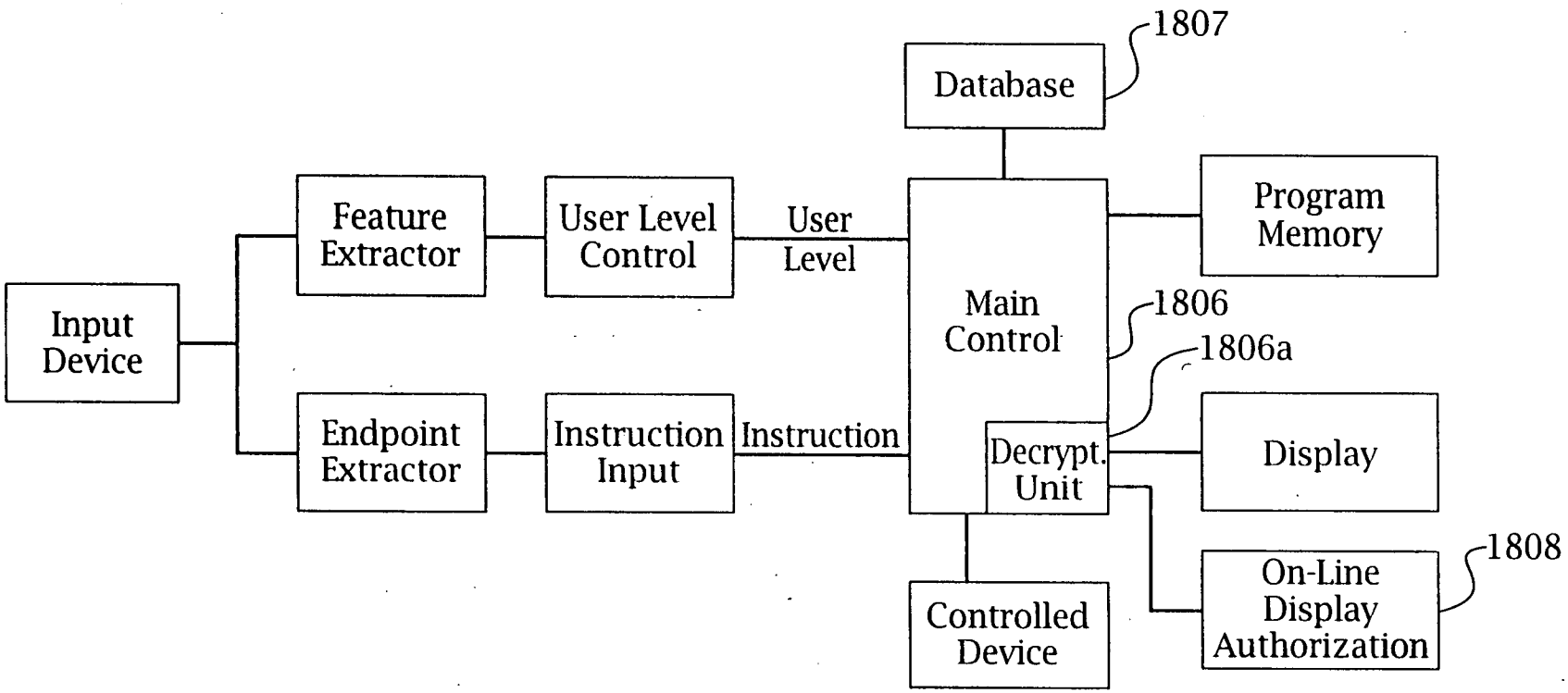

1807
Database
Feature Extractor
User Level Control
User Level
Main Control
Program Memory
Input Device
1806
1806a
Endpoint Extractor
Instruction Input
Instruction
Decrypt. Unit
Display
1808
On-Line Display Authorization
Controlled Device

Fig. 18

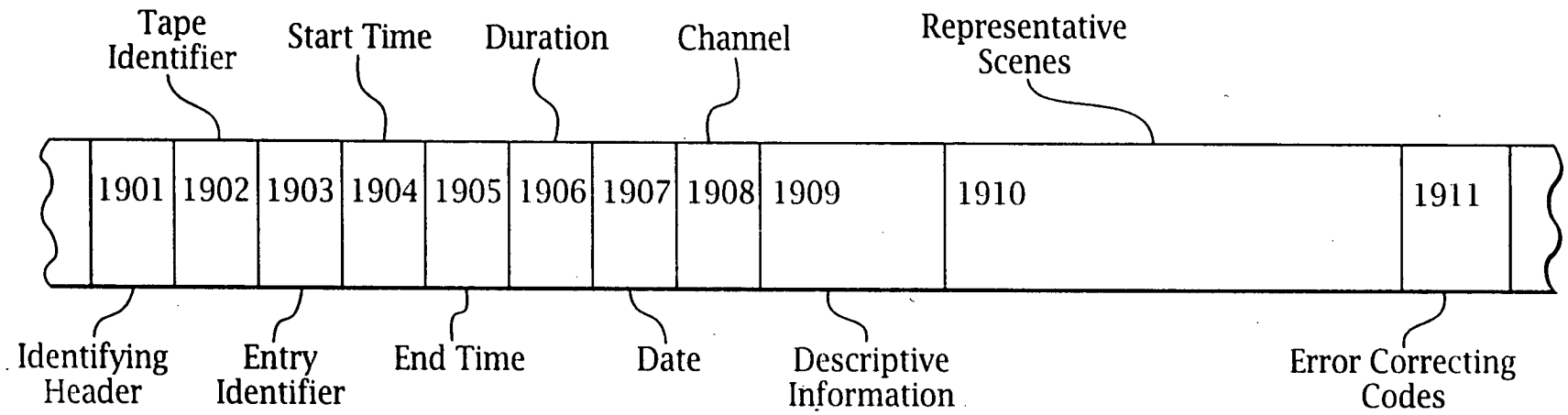

Tape Identifier
Start Time
Duration
Channel
Representative Scenes
1901
1902
1903
1904
1905
1906
1907
1908
1909
1910
1911
Identifying Header
Entry Identifier
End Time
Date
Descriptive Information
Error Correcting Codes

Fig. 19

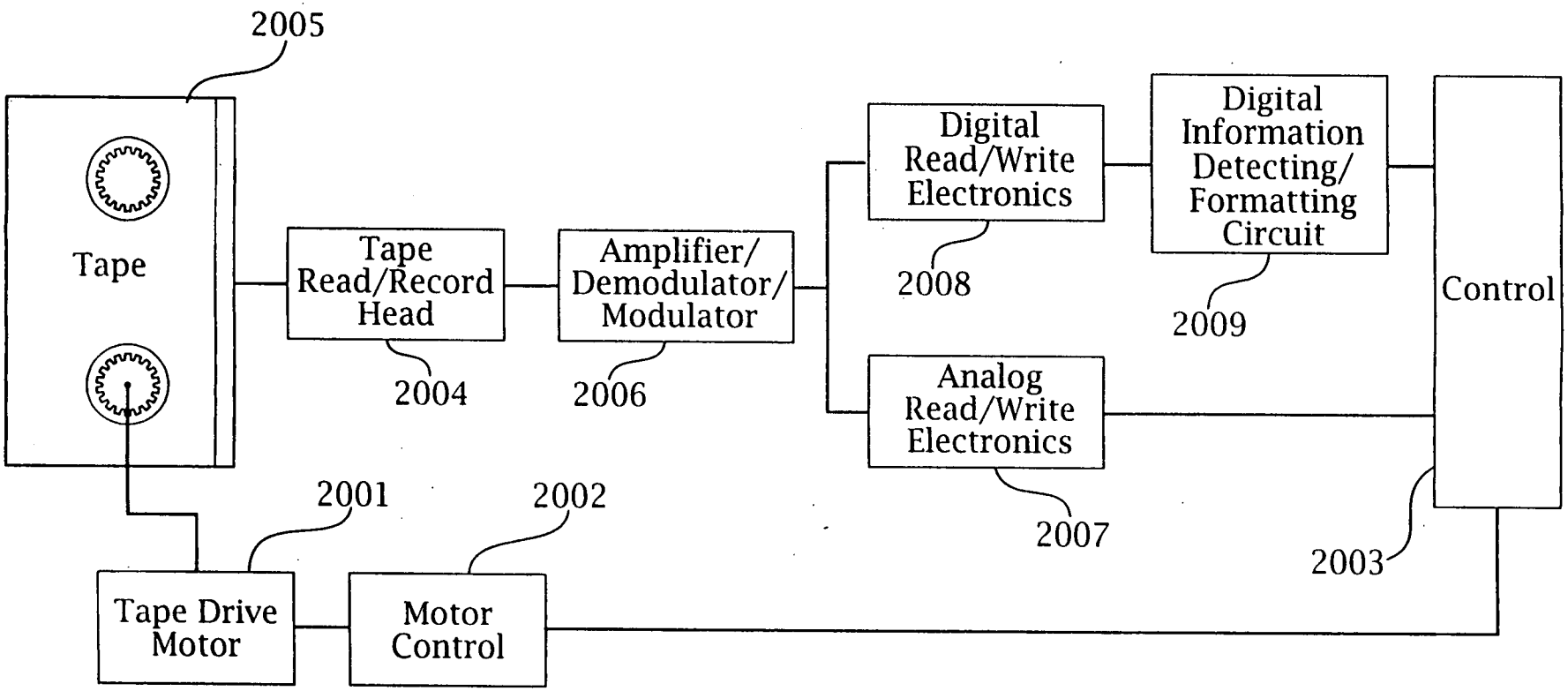

2005
Tape
Tape Read/Record Head
2004
Amplifier/ Demodulator/ Modulator
2006
Digital Read/Write Electronics
2008
Digital Information Detecting/ Formatting Circuit
2009
Control
Analog Read/Write Electronics
2007
2003
2001
2002
Tape Drive Motor
Motor Control

Fig. 20

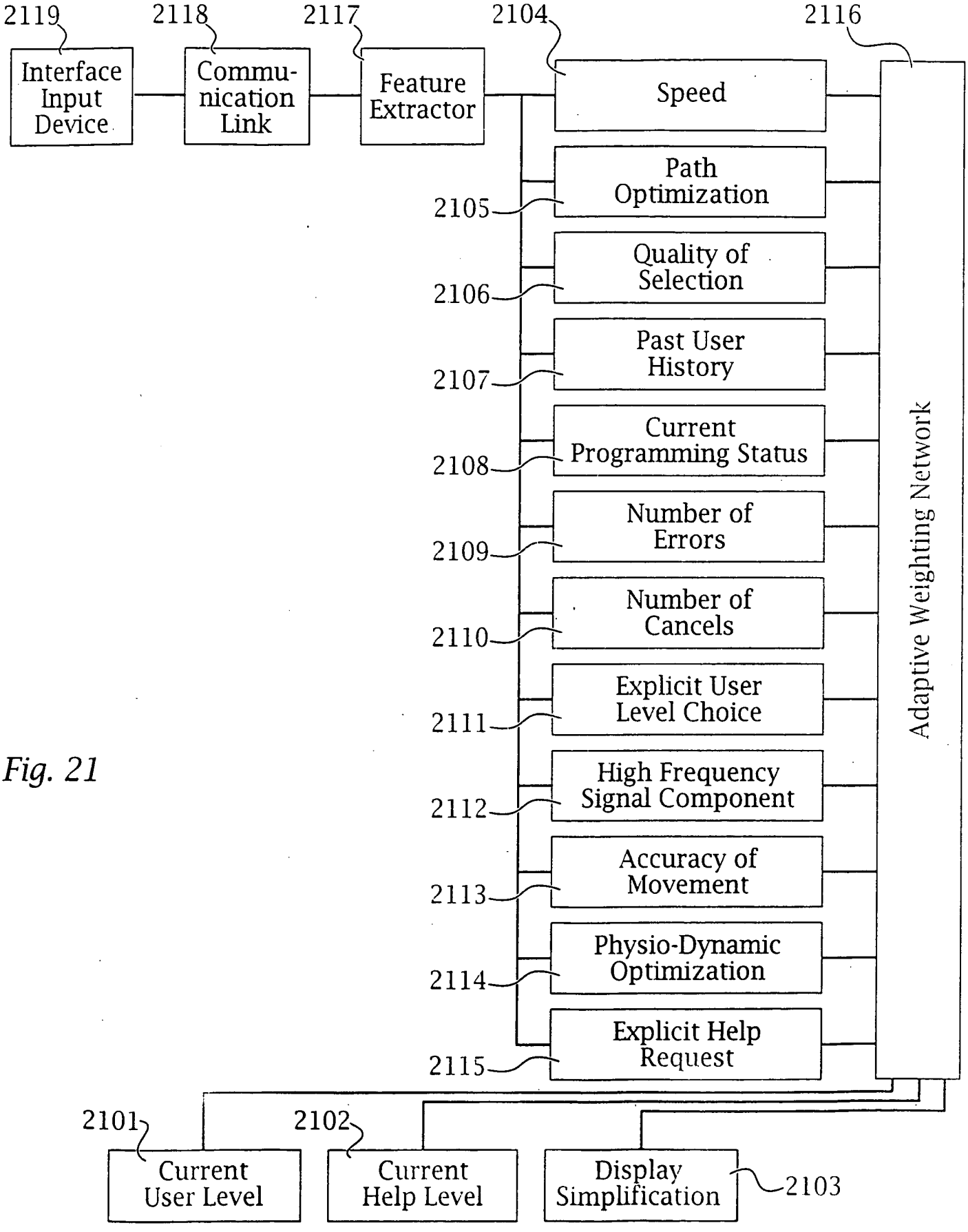

2119
Interface Input Device
2118
Commu-nication Link
2117
Feature Extractor
2104
2116
Speed
Path Optimization
2105
Quality of Selection
2106
Past User History
2107
Current Programming Status
2108
Number of Errors
2109
Number of Cancels
2110
Explicit User Level Choice
2111
High Frequency Signal Component
2112
Accuracy of Movement
2113
Physio-Dynamic Optimization
2114
Explicit Help Request
2115
Adaptive Weighting Network
2101
Current User Level
2102
Current Help Level
Display Simplification
2103

Fig. 21

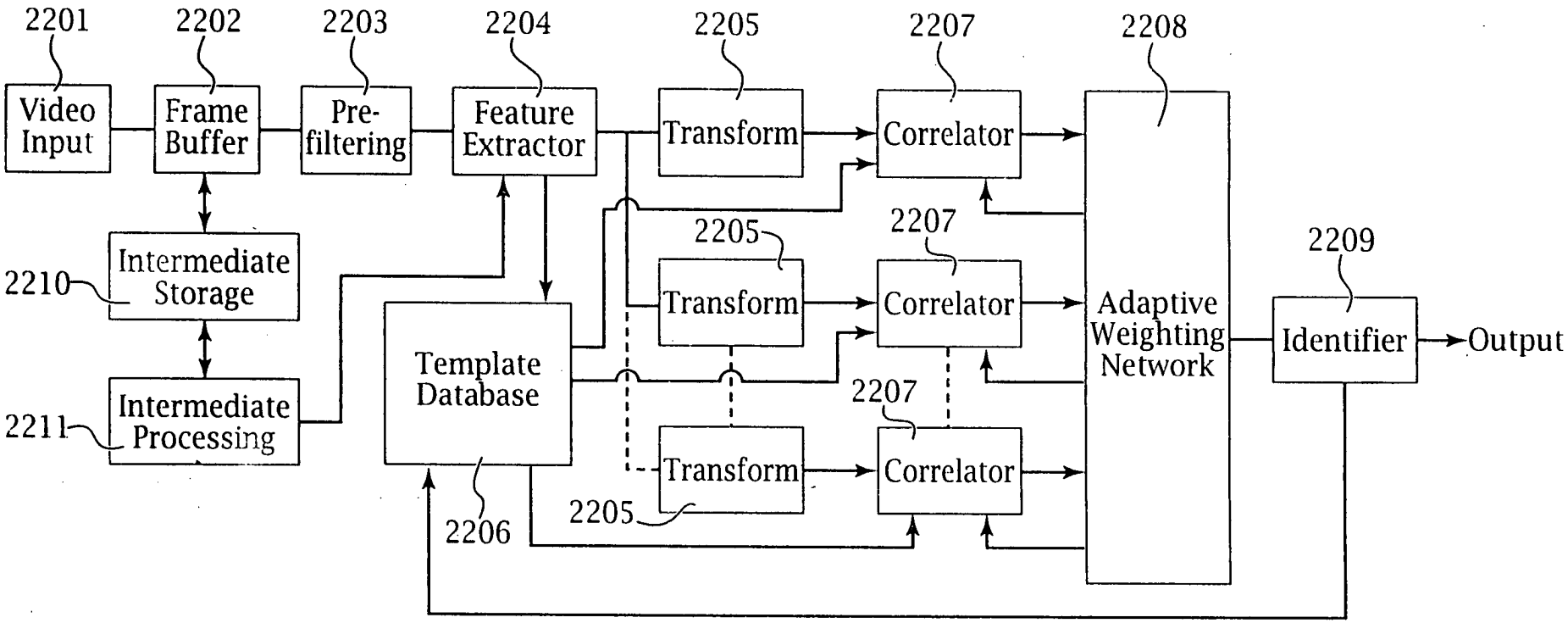

2201
2202
2203
2204
2205
2207
2208
Video Input
Frame Buffer
Pre-filtering
Feature Extractor
Transform
Correlator
2210
Intermediate Storage
2205
2207
2209
Transform
Correlator
Adaptive Weighting Network
Identifier
Output
Template Database
2211
Intermediate Processing
2207
Transform
Correlator
2206
2205

Fig. 22

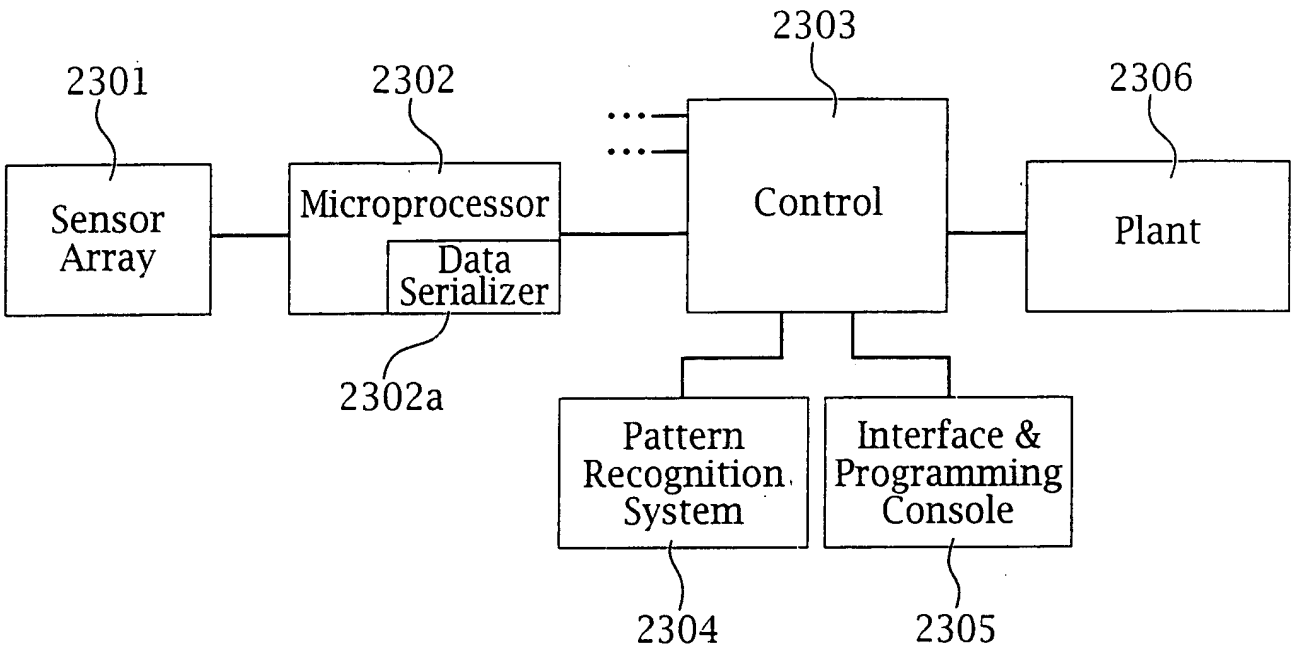

2303
2301
2302
2306
Sensor Array
Microprocessor
Data Serializer
Control
Plant
2302a
Pattern Recognition System
Interface & Programming Console
2304
2305

Fig. 23

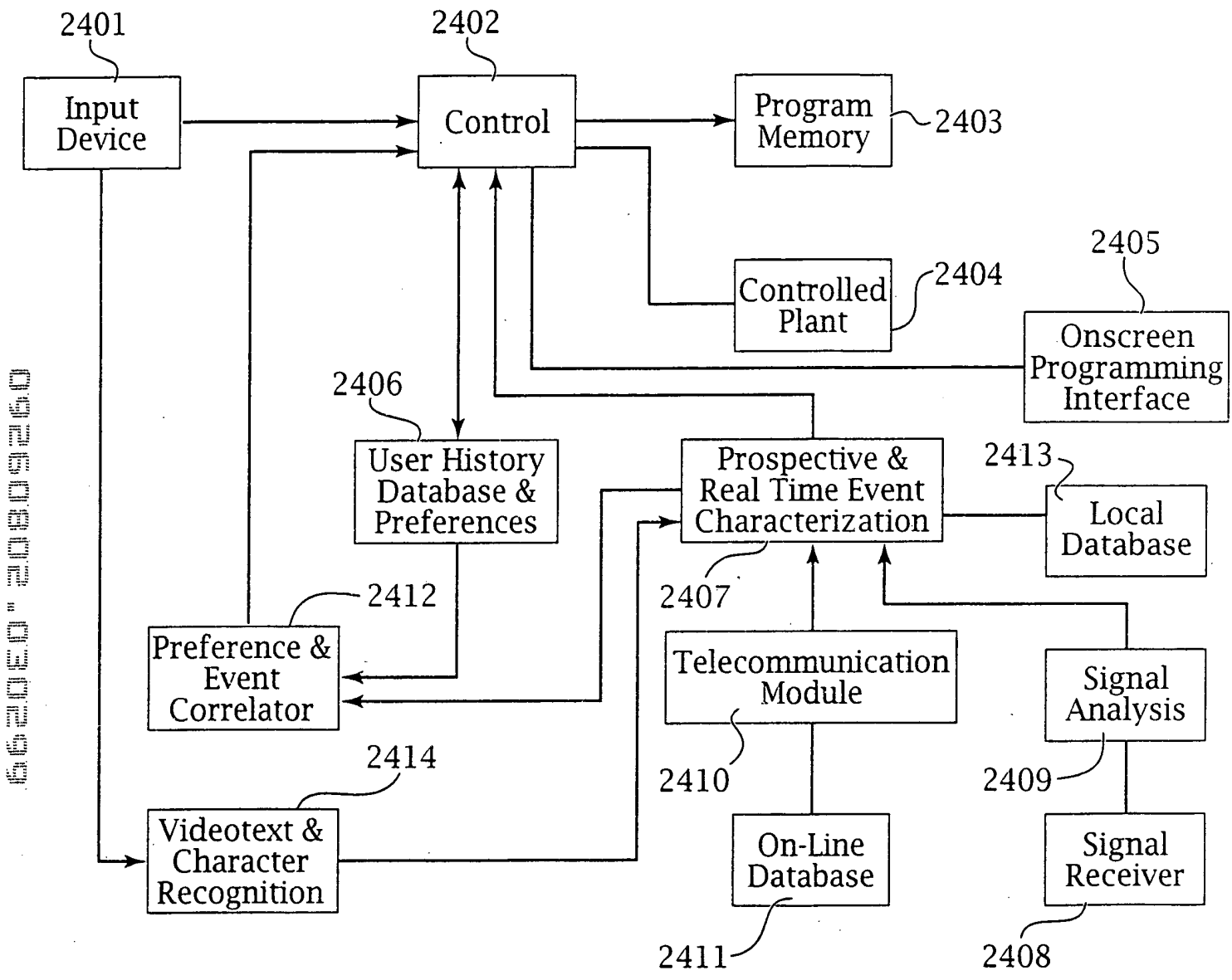

2401
Input Device
2402
Control
Program Memory
2403
Controlled Plant
2404
2405
Onscreen Programming Interface
2406
User History Database & Preferences
Prospective & Real Time Event Characterization
2413
Local Database
2407
2412
Preference & Event Correlator
Telecommunication Module
Signal Analysis
2410
2409
2414
Videotext & Character Recognition
On-Line Database
Signal Receiver
2411
2408

Fig. 24

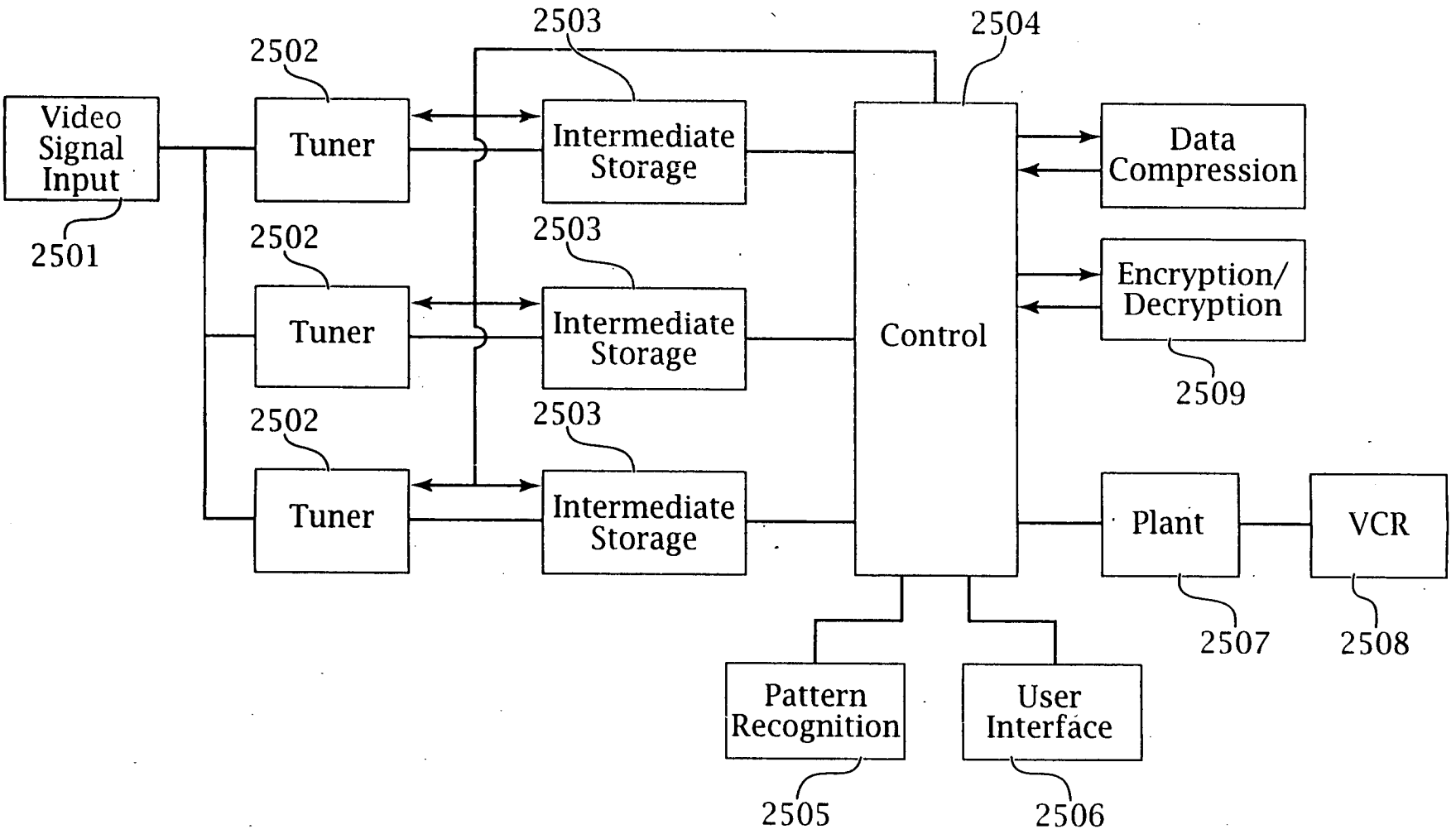

Video Signal Input
2501
2502
Tuner
2502
Tuner
2502
Tuner
2503
Intermediate Storage
2503
Intermediate Storage
2503
Intermediate Storage
2504
Control
Data Compression
Encryption/ Decryption
2509
Plant
2507
VCR
2508
Pattern Recognition
2505
User Interface
2506

Fig. 25

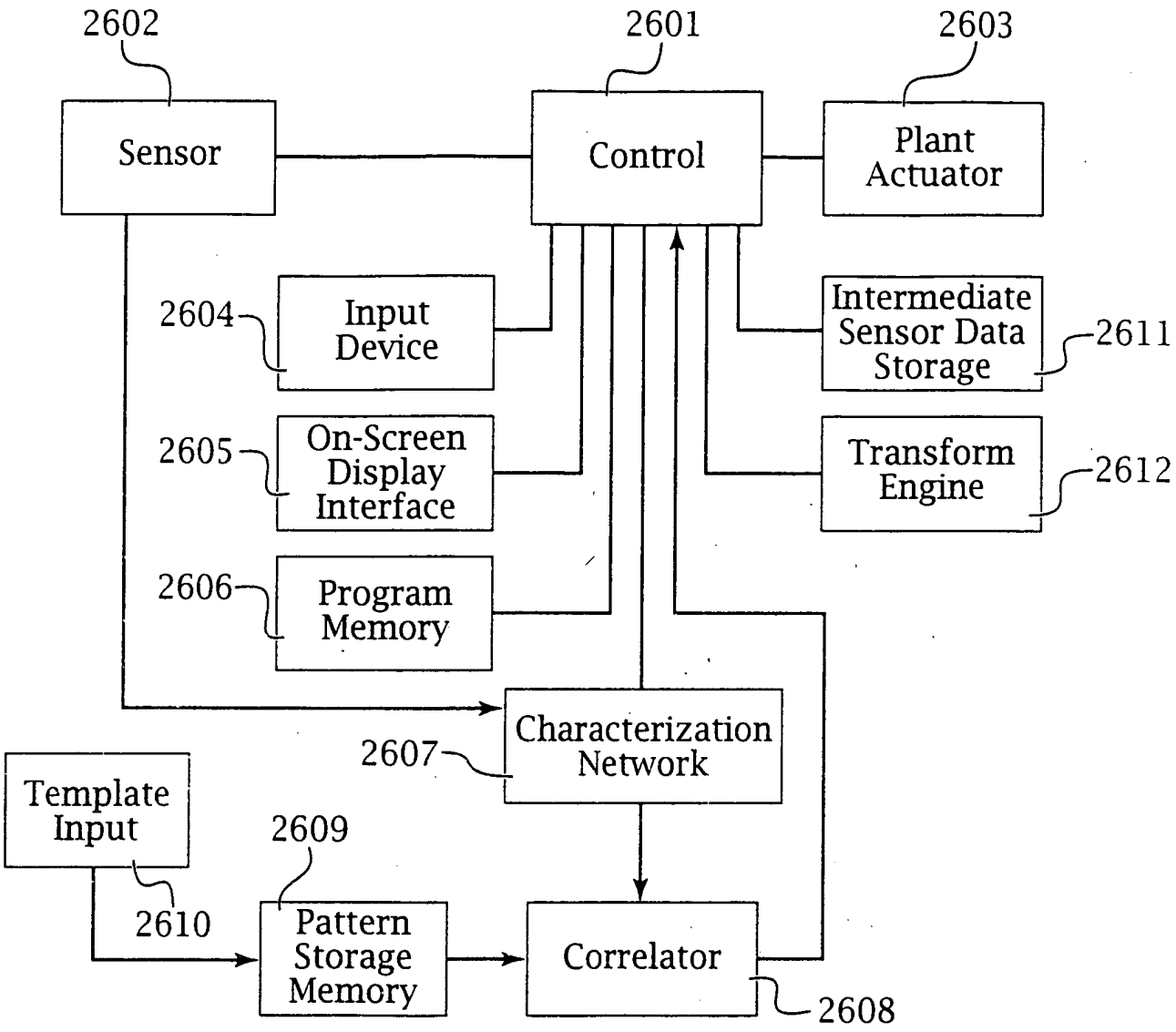

2602
2601
2603
Sensor
Control
Plant Actuator
2604
Input Device
Intermediate Sensor Data Storage
2611
2605
On-Screen Display Interface
Transform Engine
2612
2606
Program Memory
Characterization Network
2607
Template Input
2609
2610
Pattern Storage Memory
Correlator
2608

Fig. 26

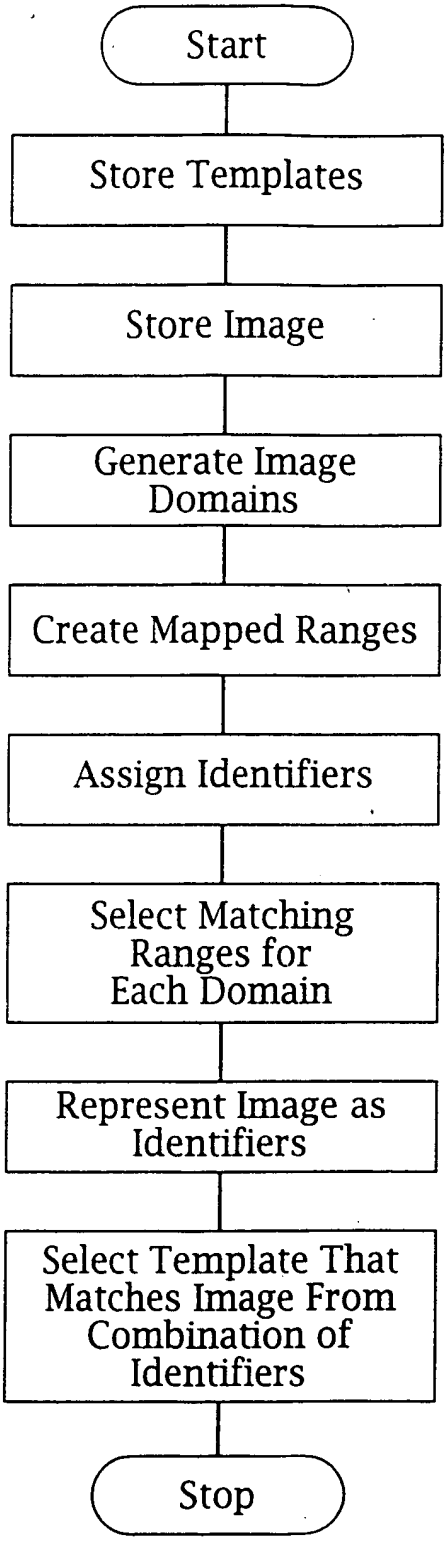

Start
Store Templates
Store Image
Generate Image Domains
Create Mapped Ranges
Assign Identifiers
Select Matching Ranges for Each Domain
Represent Image as Identifiers
Select Template That Matches Image From Combination of Identifiers
Stop

Fig. 27

6,256,409 B1

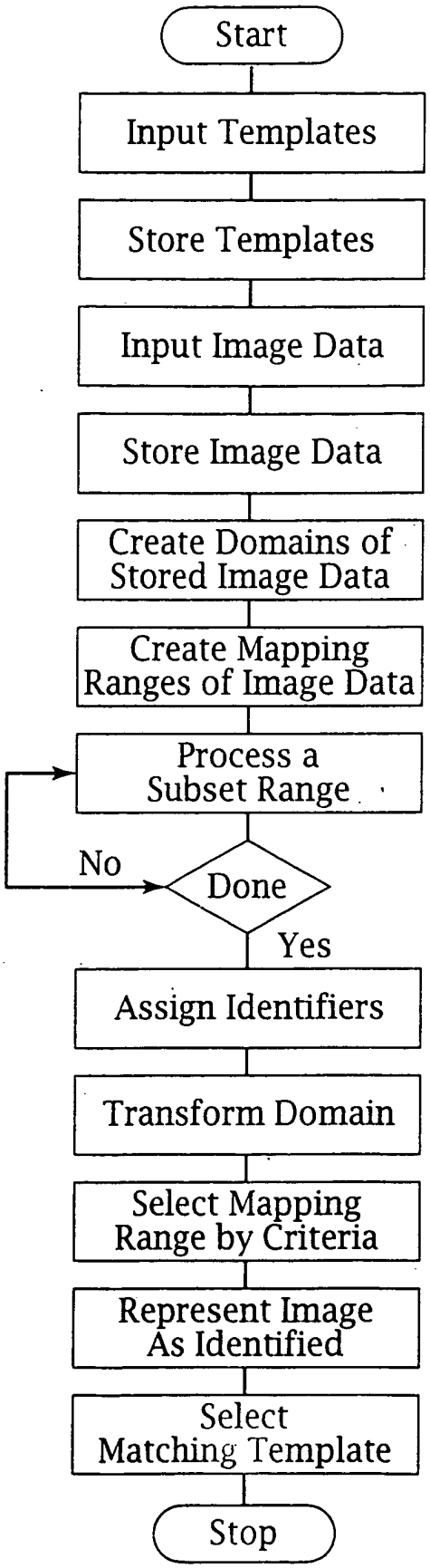


Fig. 28

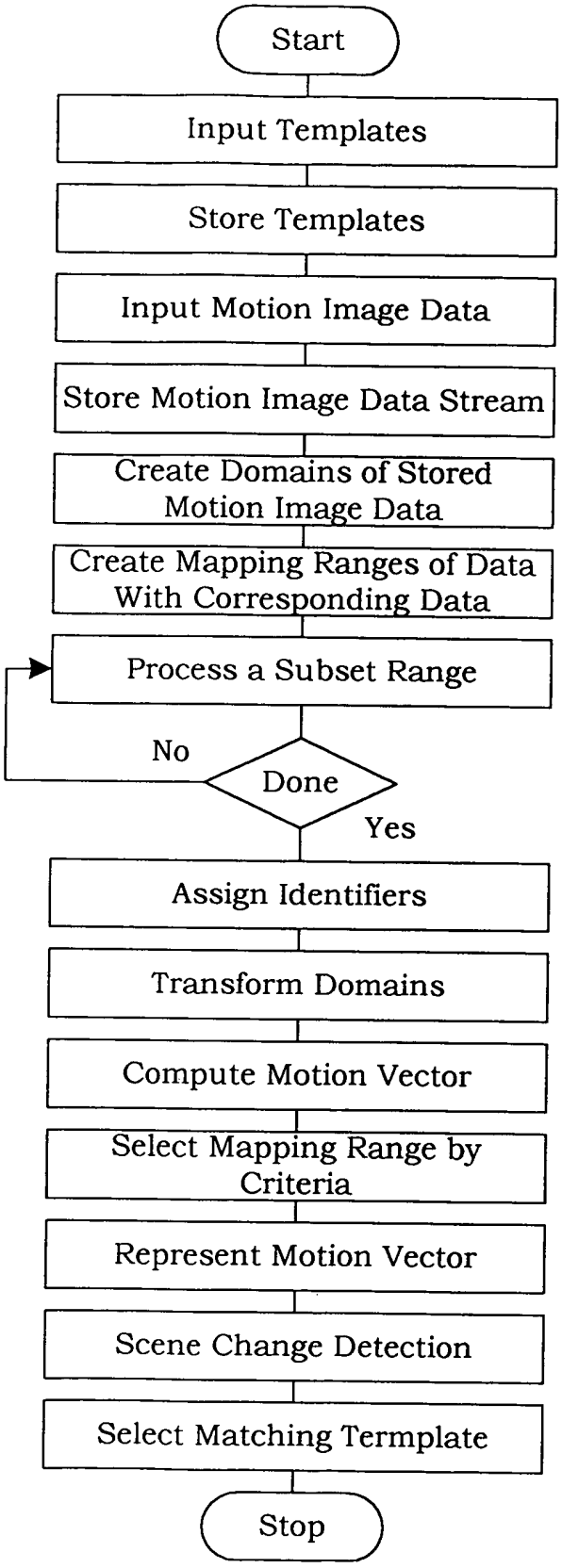

Start
Input Templates
Store Templates
Input Motion Image Data
Store Motion Image Data Stream
Create Domains of Stored Motion Image Data
Create Mapping Ranges of Data With Corresponding Data
Process a Subset Range
No
Done
Yes
Assign Identifiers
Transform Domains
Compute Motion Vector
Select Mapping Range by Criteria
Represent Motion Vector
Scene Change Detection
Select Matching Termplate
Stop

Fig. 29

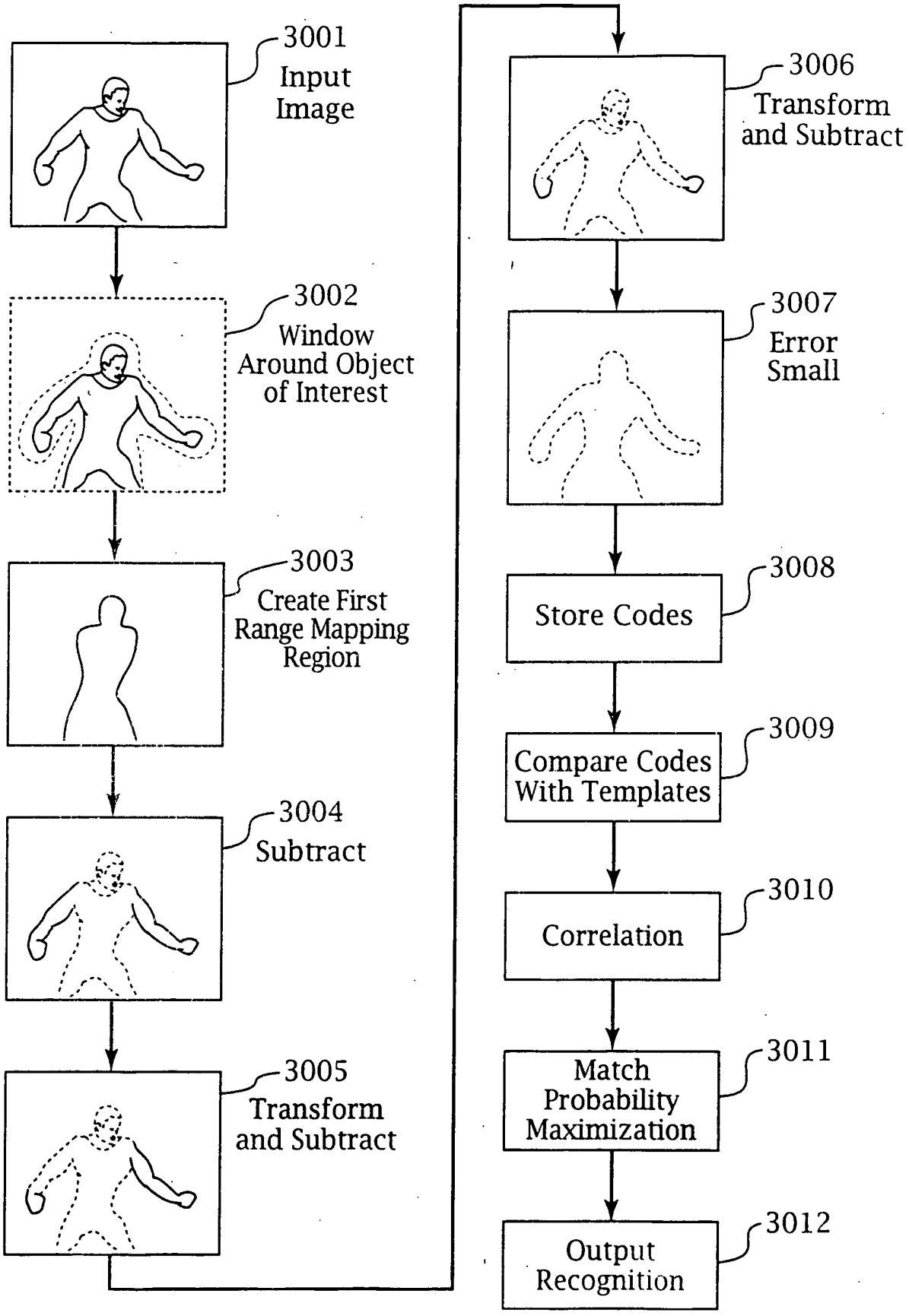

3001
Input Image
3002
Window Around Object of Interest
3003
Create First Range Mapping Region
3004
Subtract
3005
Transform and Subtract
3006
Transform and Subtract
3007
Error Small
3008
Store Codes
3009
Compare Codes With Templates
3010
Correlation
3011
Match Probability Maximization
3012
Output Recognition

Fig. 30

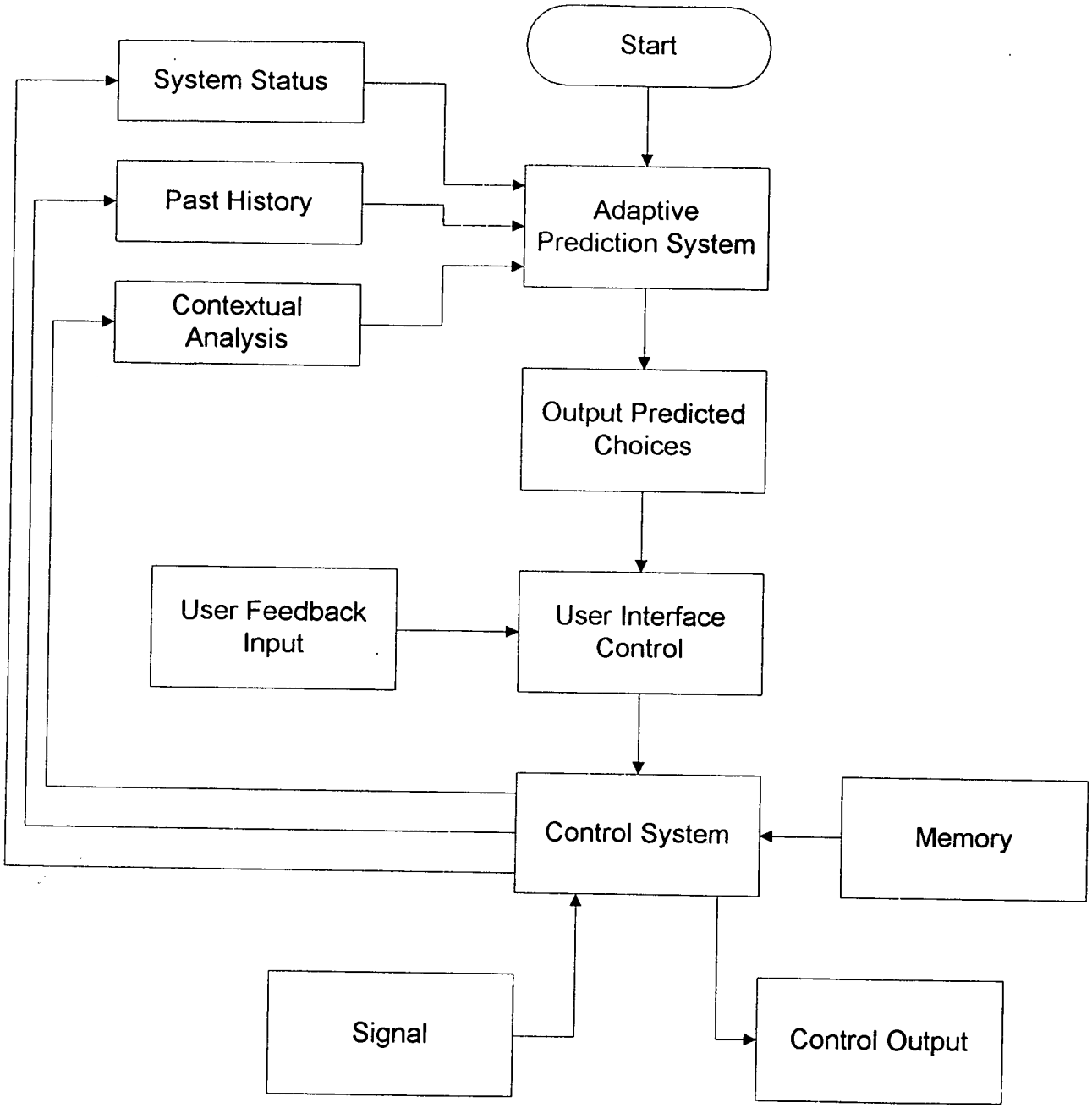

Start
System Status
Past History
Contextual Analysis
Adaptive Prediction System
Output Predicted Choices
User Feedback Input
User Interface Control
Control System
Memory
Signal
Control Output

Fig. 31

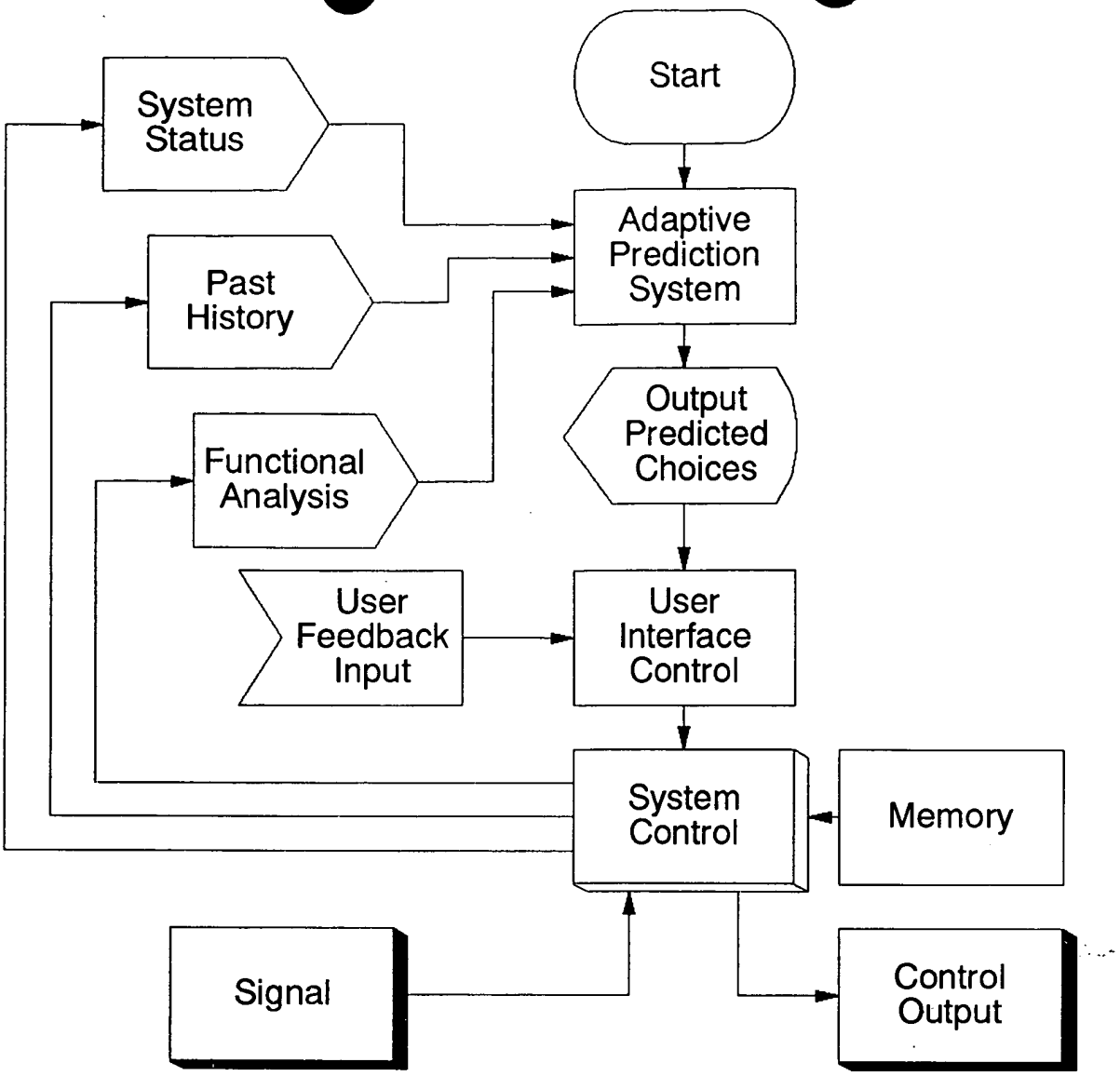

Start
System Status
Adaptive Prediction System
Past History
Output Predicted Choices
Functional Analysis
User Feedback Input
User Interface Control
System Control
Memory
Signal
Control Output

Fig. 32

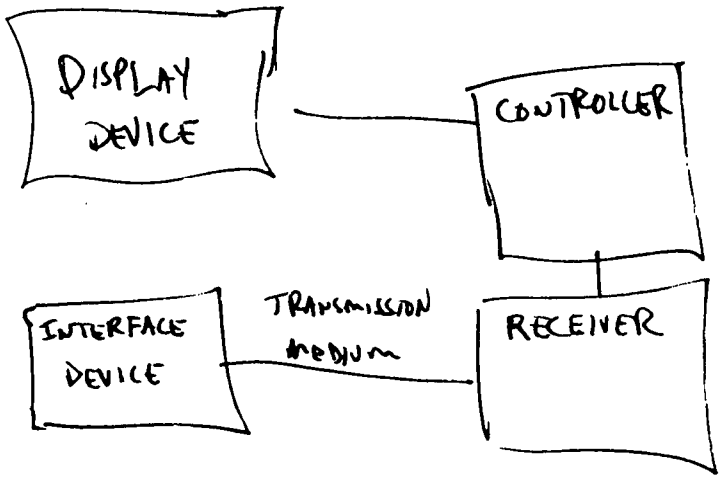


FIG 15

BLOCK DIAGRAM

09260802.030299

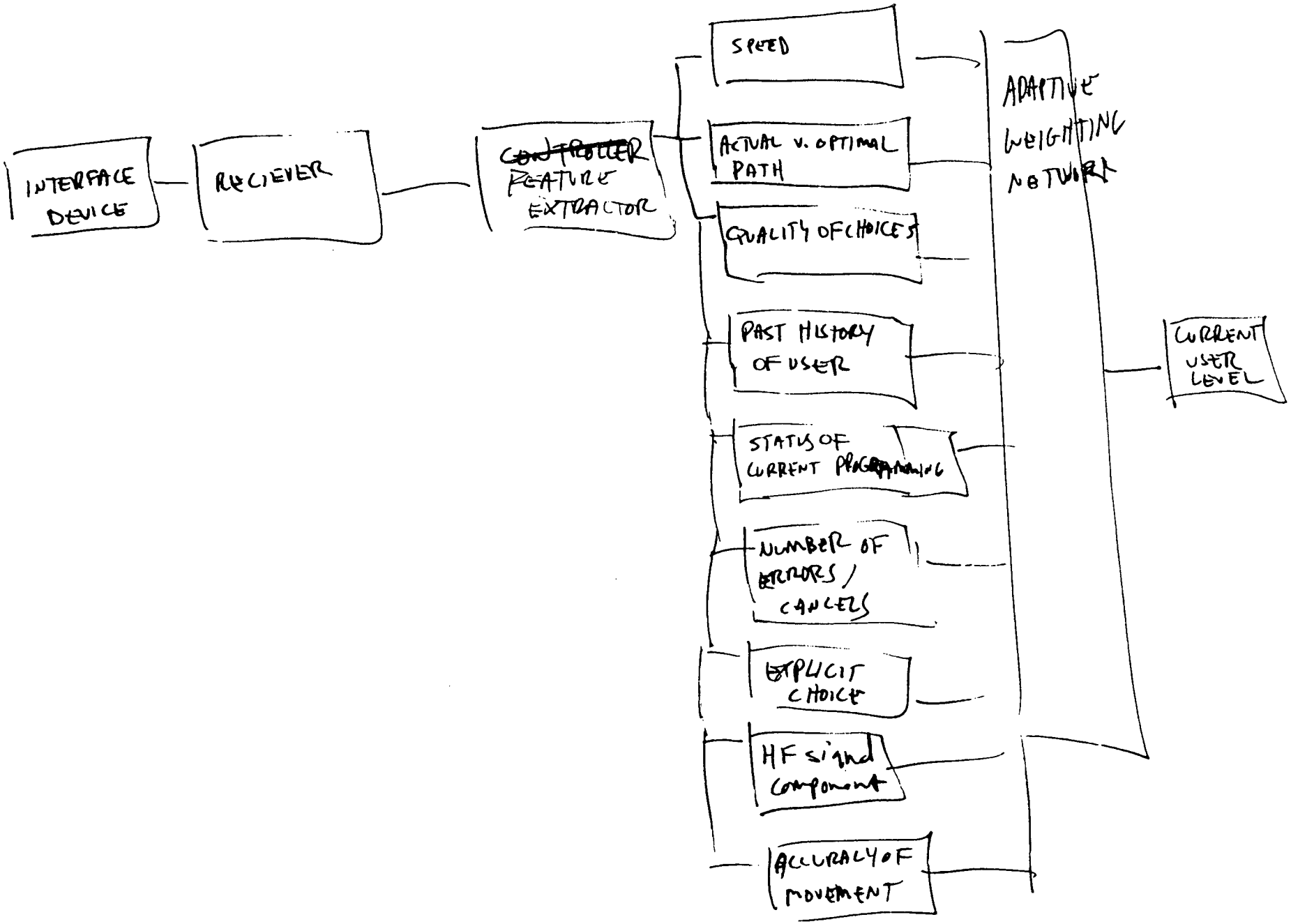


FIG 16

ADAPTIVE USER INTERFACE LEVEL

09260802.030299

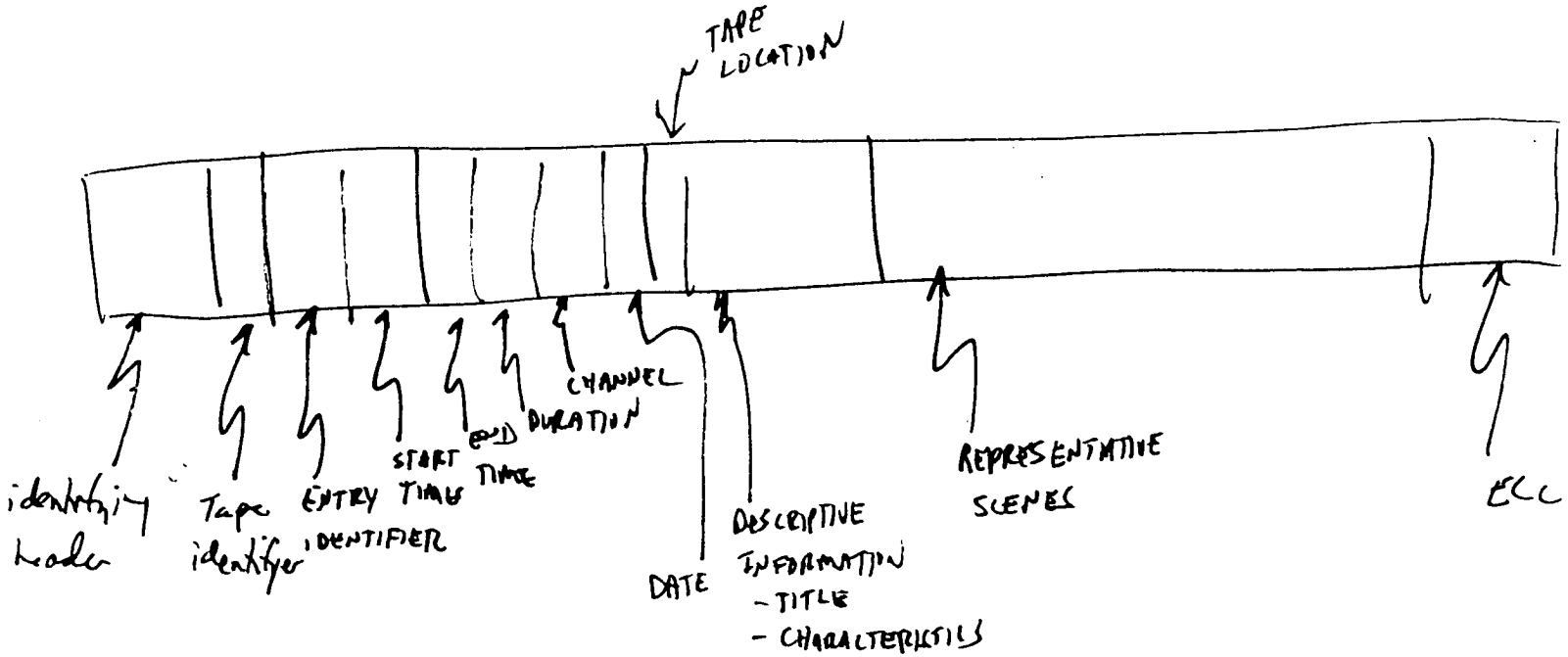


FIG. 17

CATALOG ENTRY FOR VIDEO RECORDING (METHOD)

09260802.030299

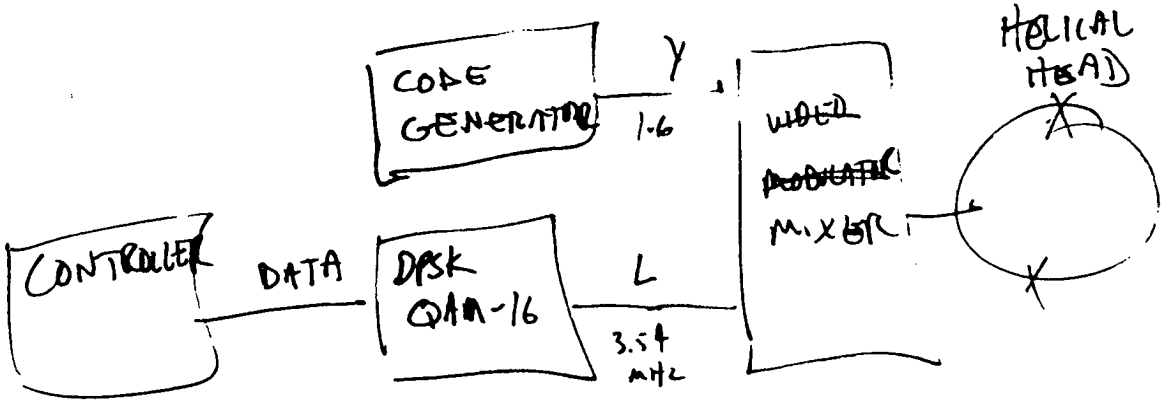


FIG. 18 CATALOG RECORDING CIRCUIT (VIDEO)

09260802.030299

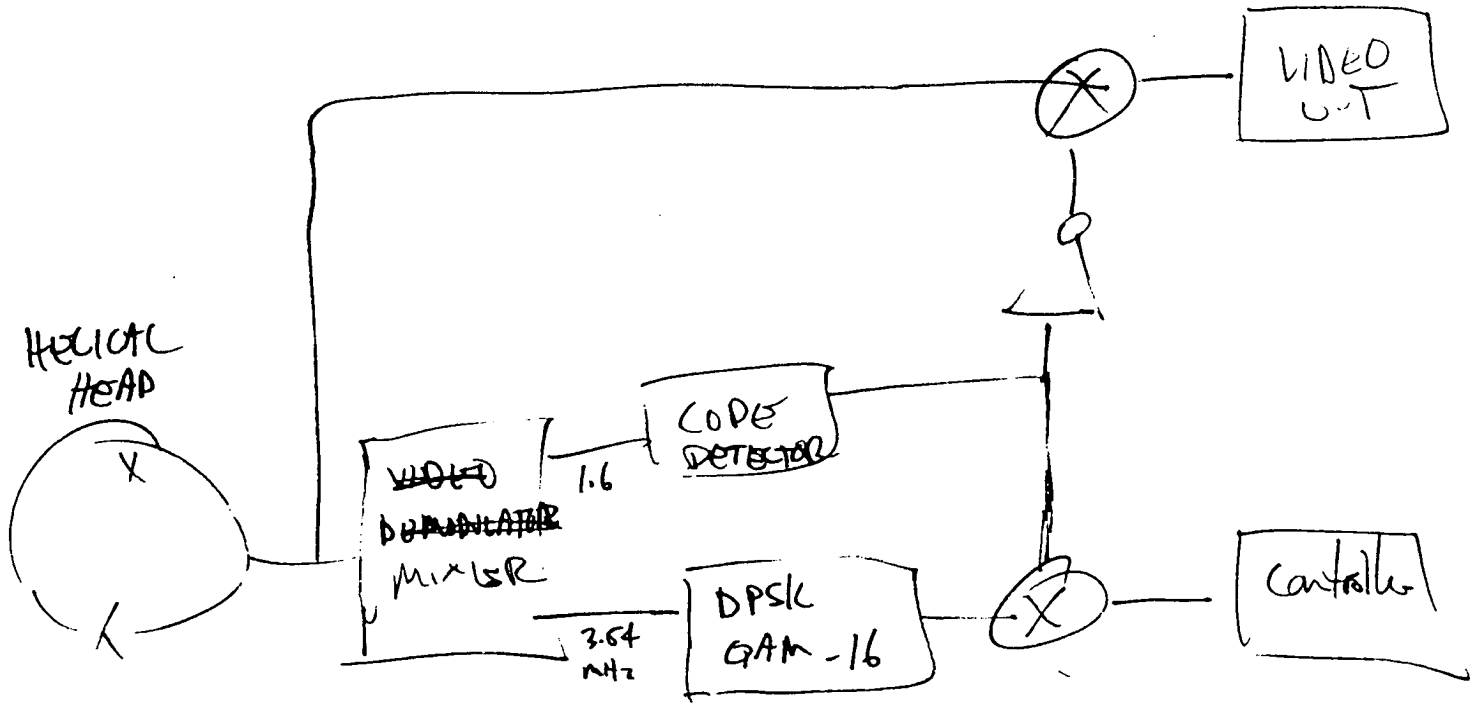


FIG 19 CATALOG READING CIRCUIT (VIDEO)

09260802.030299

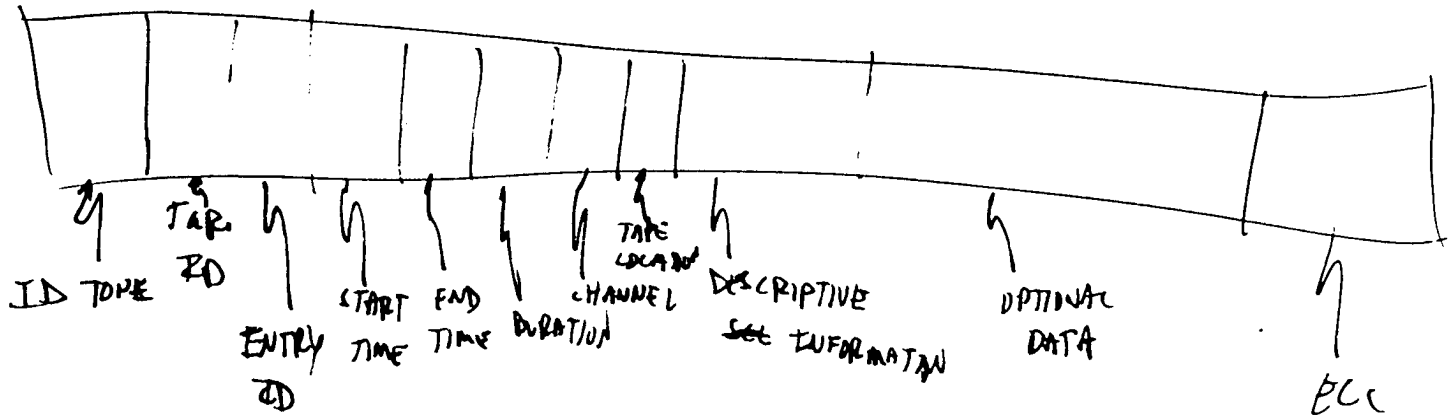


FIG. 20 CATALOG ENTRY FOR AUDIO RECORDING METHOD

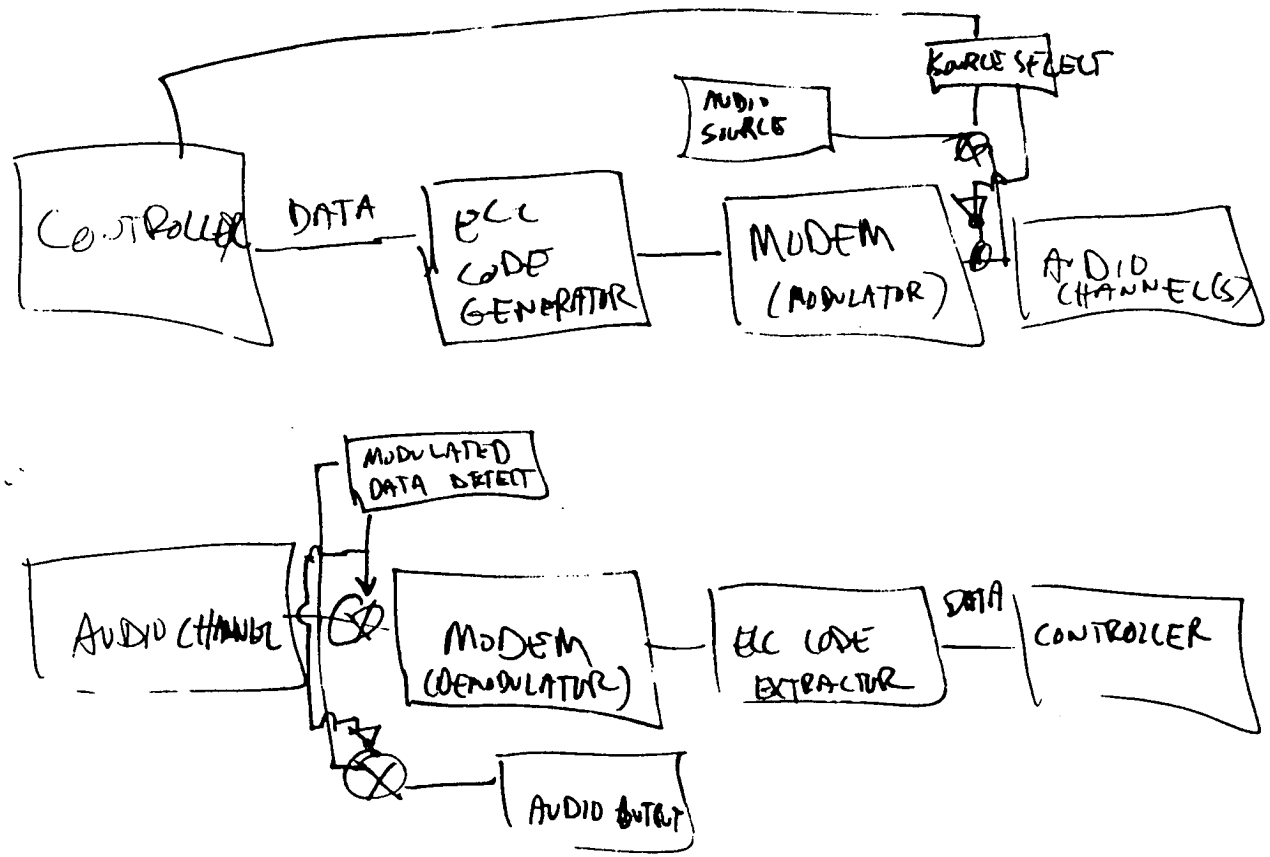


FIG 21 RECORDING AND READOUT CIRCUIT, AUDIO

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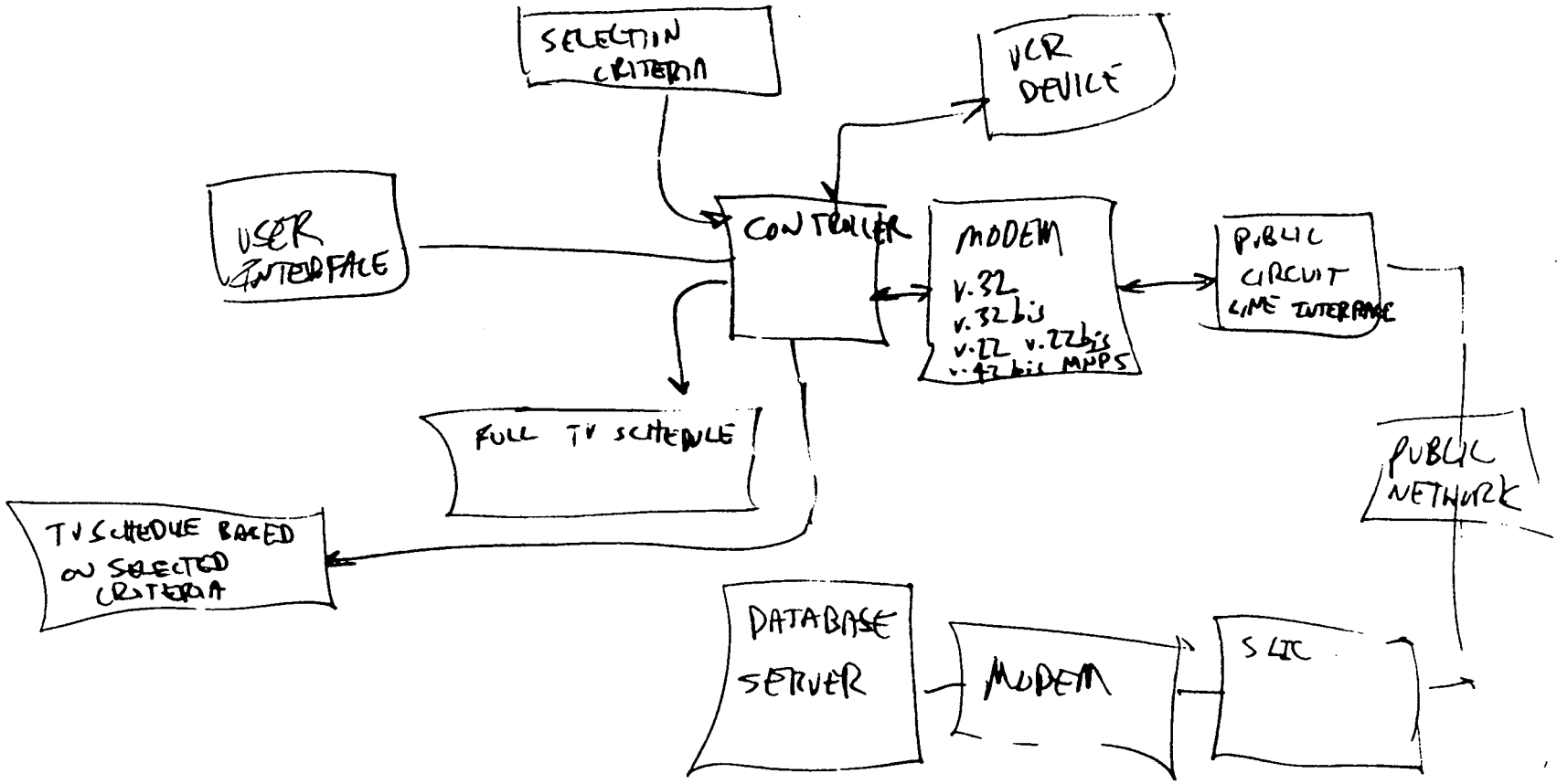

FIG. 22 TELECOM FUNCTION

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FIG. 23 CLOSE CAPTION / "CABLEVISION" READING

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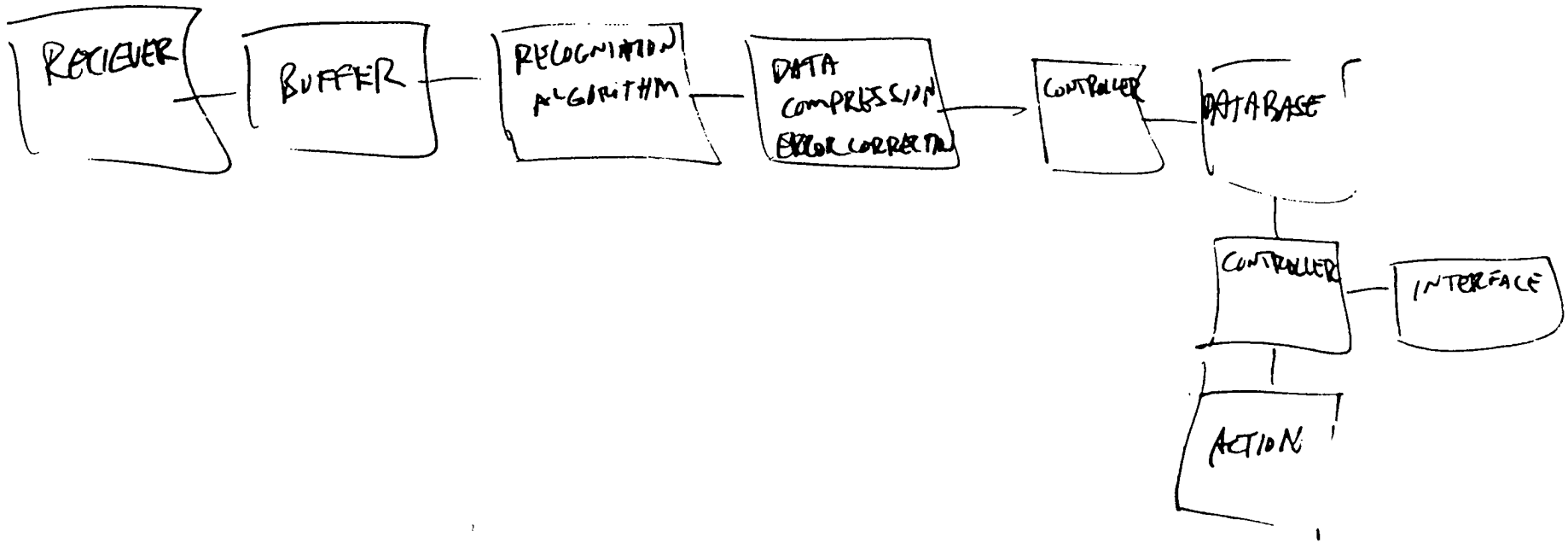

FIG 24 STOCK PRICE REGION

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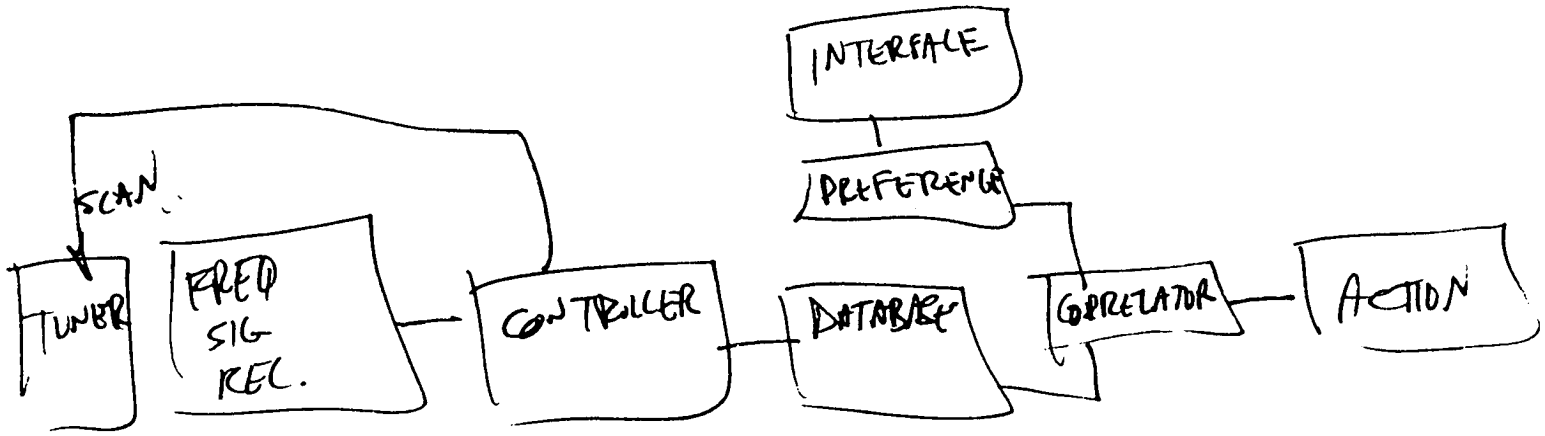

FIG. 25 FREQUENCY SIGNAL RECEIVER

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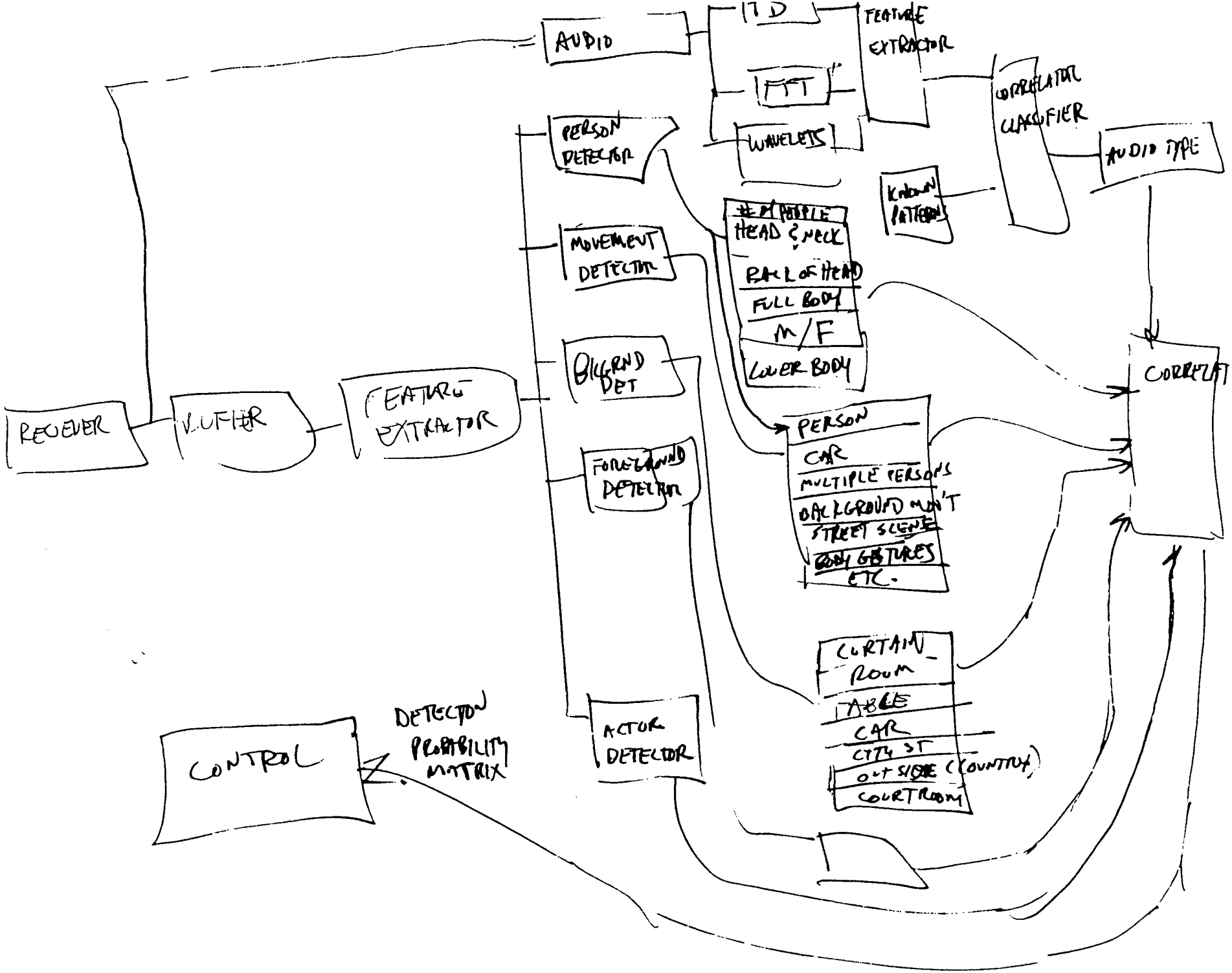

FIG. 26 PROGRAM CONTENT DISCRIMINATOR

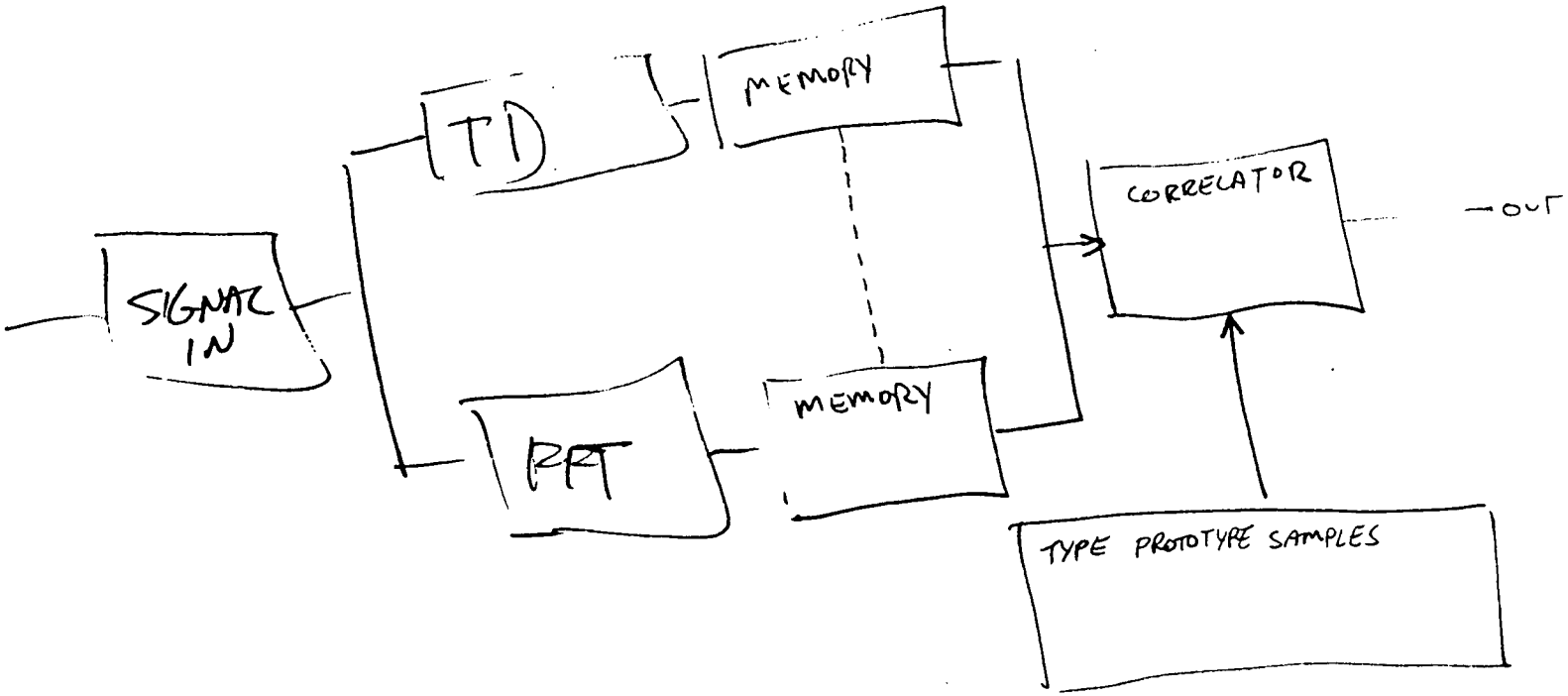

FIG 27 DETAIL OF PROGRAM CONTENT PKG. — AUDIO

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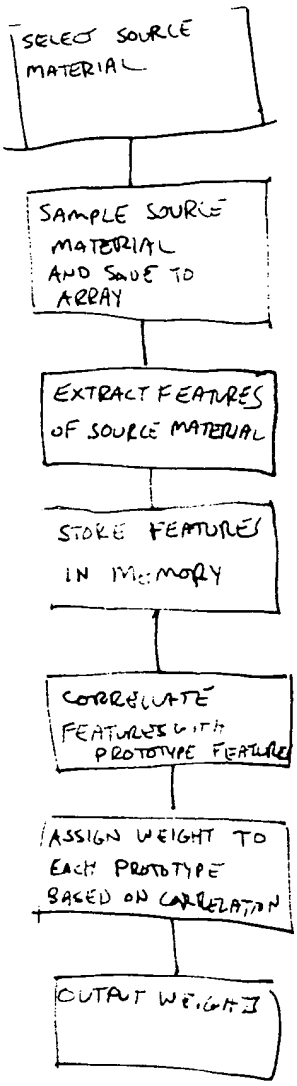

FIG 8 METHOD OF DISCRIMINATING AUDIO PROGRAM CONTENT

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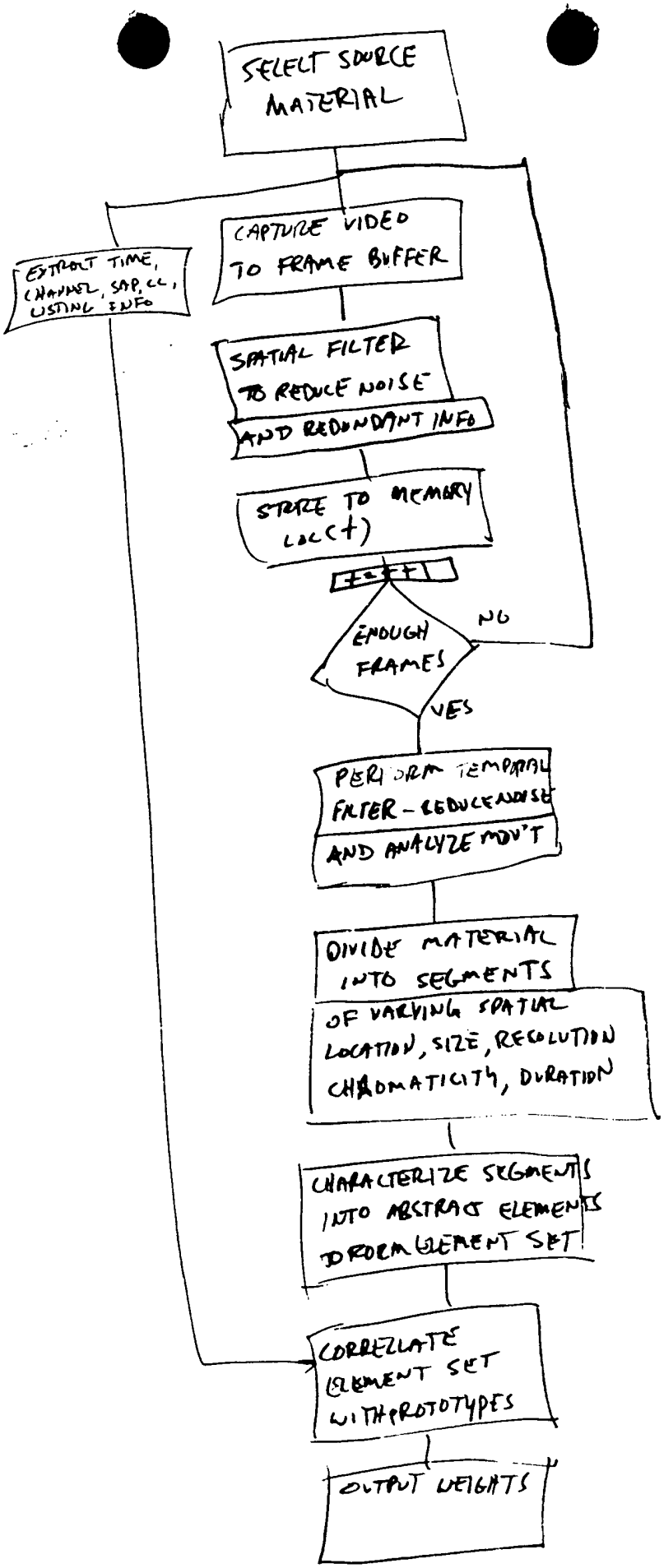

FIG. 29 FEATURE EXTRACTOR - VIDEO (METHOD)

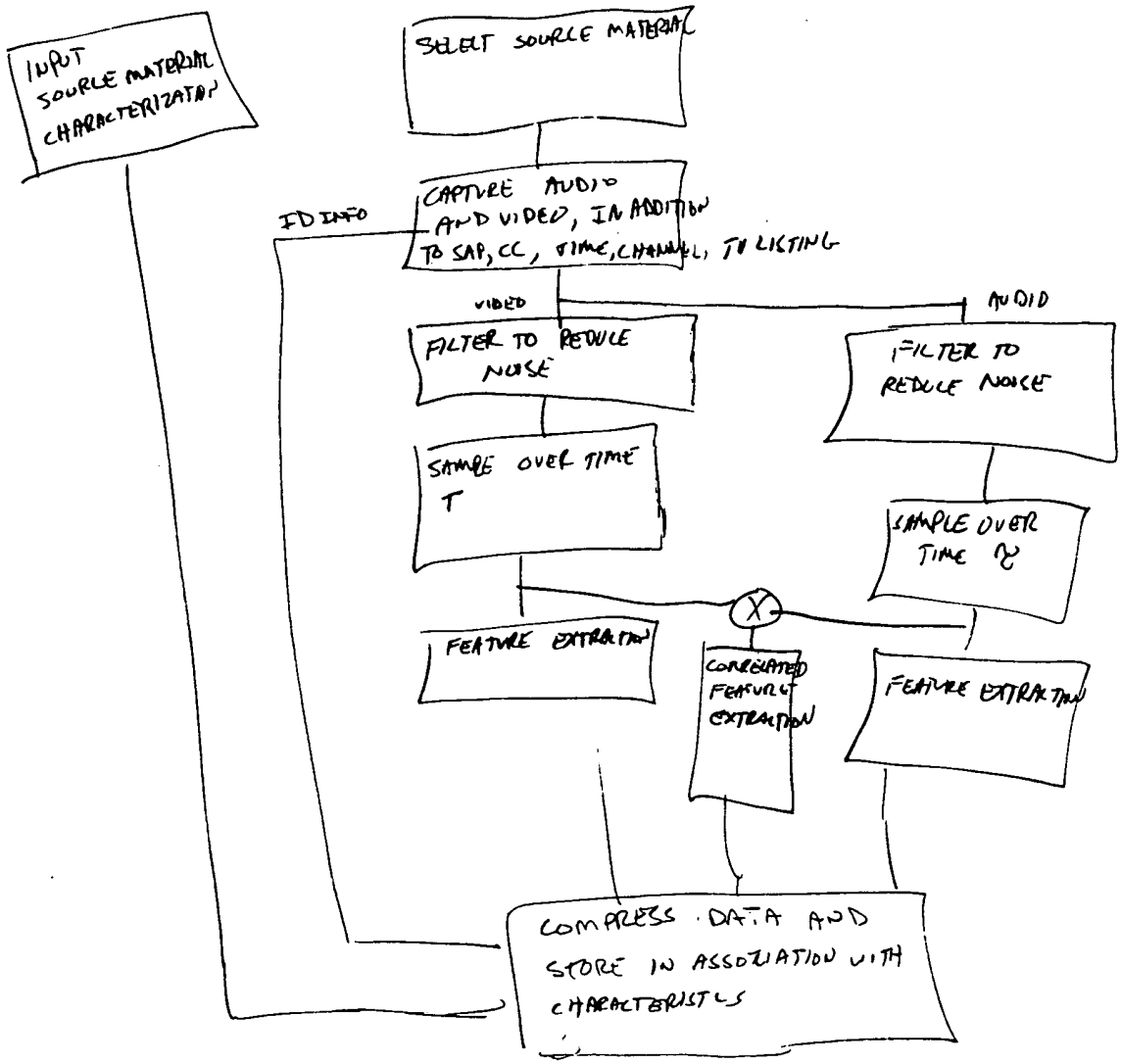

FIG. 3D PROTOTYPE CREATION METHOD

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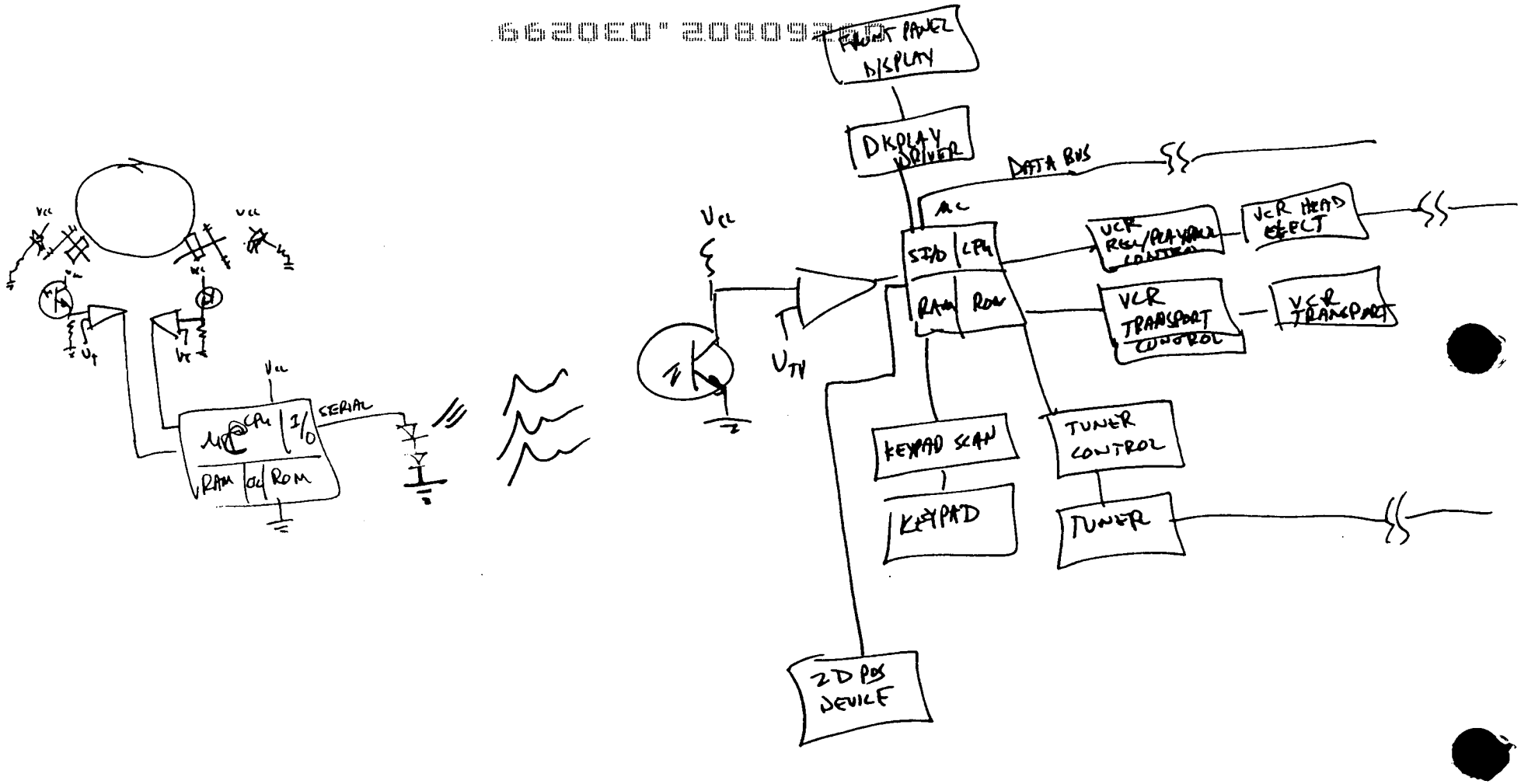

FIG. 31 HARDWARE DESCRIPTION

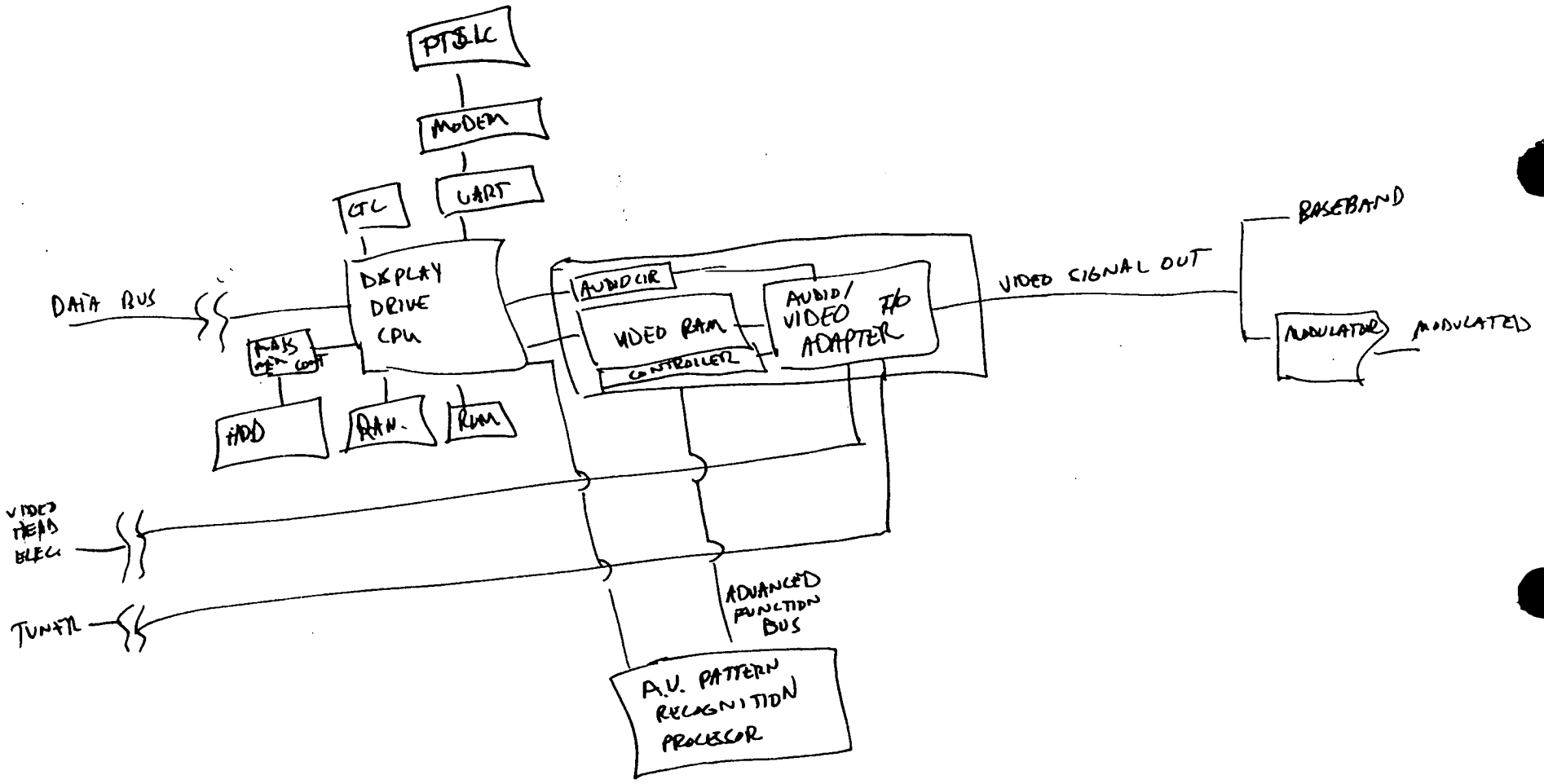

FIG 31B INTERFACE DRIVER